Family Processes Underlying Economic Insecurity, Father Involvement, and Child Outcomes in Families with Low Income

by

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A dissertation submitted in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy
(Social Work and Psychology)
in the University of Michigan
2021

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DEDICATION

To Daniel and Luka,

for letting me observe their developing father-child relationship up close

ACKNOWLEDGEMENT

This dissertation is possible because of the relentless support of many individuals and groups, and I would like to take a moment to acknowledge and thank them here. First, I would like to thank God (and Jesus Christ, my personal Lord and Savior) for His faithfulness and goodness in carrying me through the Joint PhD Program in Social Work and Psychology. His words, in the form of the Bible, and presence served as key sources of comfort and strength the past six years in the program. I know that only by His grace I was able to complete all doctoral degree requirements, including this dissertation. *Soli Deo Gloria*.

Second, I would like to thank my primary academic mentors, Dr. Shawna J. Lee and Dr. Brenda L. Volling, who have poured incredible amounts of time and energy into developing me into a researcher and an educator. I could not have become the professional and person I am today without their relentless encouragement and support. I would like to acknowledge their specific contributions here:

- Dr. Shawna Lee: Thank you for the countless opportunities you have made available for me to gain important research experiences and skills (e.g., qualitative, quantitively, community-based participatory research, program evaluation), teaching skills (e.g., teaching assistantship with you and Julie Ribaudo), be exposed to different scholarly activities (e.g., grant writing, scholarly editorial board), and connect with experts in the field. I am also incredibly grateful for your investment in me as a scholar, as well as in other areas of my life, including encouraging me to continue to develop my clinical practice and being so generous in throwing for me a baby shower and, most recently,

a post-defense party. These were incredibly thoughtful and kind gestures. You set an example for me to follow as a scholar, mentor, and mother, and for these, and more, I am eternally grateful. I especially admire your passion for advocating for children and their wellbeing, and I hope to carry on a similar spirit in my work as a child welfare scholar.

- Dr. Brenda Volling: Thank you for investing and seeing in me the potential to be a scholar who would make important contributions to the field of fatherhood and family research. I still remember when I said I would quit academia because I just could not see myself raising a little child while being in a research-intensive work environment. Work-life balance seemed impossible at the time, and you said to "hold on" because you believed that my work would make an impact in the field. Your encouragement has carried me through some of the most difficult times of this doctoral journey. Thank you for being by myside through tough journal review processes, the transition to motherhood, complexities in running structural equation models, and so much more. I am forever grateful for your belief in me and what I could accomplish. You set a high bar for me Brenda but always provided the support I need to successfully meet the bar.

Third, I would like to take a moment to thank members of my dissertation committee. Specifically, I would like to thank Dr. Andrew C. Grogan-Kaylor for going above and beyond to share his expert Bayesian knowledge, and much more, with me. Without his specific guidance and mentoring, dissertation study 2 would not have been possible. Also, thank you Andy for your support through the preliminary examination process and support for the #Parenting Rackham Interdisciplinary Workshop as an academic mentor. Further, I would like to thank Dr. Sheryl L. Olson, for her willingness to serve on the dissertation committee and share her expert knowledge on the developmental and social processes linked with children's emotional and behavioral

adjustment. I was really struggling to find another psychology faculty member who would serve on the committee, so I am extra grateful for your commitment and service as a member. I would like to also thank Dr. Robert M. Ortega for his mentorship as we worked on a number of clinical cases involving fathers and children. For all the cases we have worked on together, our goal has always been to help fathers who have been separated with their children reestablish safe and positive connections with their children. You always saw potential in each client and was not afraid to call out the best in them, even if that meant first dealing with each father's personal challenges (e.g., resistance to treatment, denial of child maltreatment). I saw the compassion and care you demonstrated to each father, which set an example for me as a clinician. Thank you for letting me join you in serving families in need through working at the Family Assessment Clinic.

Fourth, I would like to thank mentors outside of my dissertation committee. These mentors have also contributed greatly to my professional and personal growth by generously sharing their knowledge and expertise—be in statistics, clinical work, or job market preparation. Specifically, I would like to thank Drs. Lindsay Bornheimer, Julie Ma, Kathryne Maguire-Jack, and Jamie Mitchell for additional support during the job search process. From reading multiple drafts of my job materials to helping me through mock job talks, they have shown their support for my success in tangible ways. I am grateful for all the insights, tips, and strategies they shared to make an exceptionally challenging job season during the COVID-19 worthwhile. I would like to also thank Drs. Carolyn J. Dayton and Julie Ribaudo for their mentorship on adopting an infant mental health approach in teaching, research, and clinical practice with families. I am especially grateful for the opportunity to observe their teaching of clinical classes, as well the opportunity to serve as a teaching assistant. Relatedly, I would like to thank Mary B. Ortega, for taking me under her wings at the Family Assessment Clinic, showing me the way to take a

strength- and play-based approach to working with children and parents. You truly are a hero to all children and families who we get to meet through the clinic. I would like to extend my gratitude for Lynn Teribery at the clinic as well, for her colligability, openness to my ideas and thoughts, and ability to form strong and collaboratives teams of clinicians for each family. Other mentors I would like to mention are Dr. Inna Altchul and Dr. Michael Clark, structural equation modeling experts. Many thanks to both for entertaining the many statistical questions I sent their way over the years. You both were always knowledge, patient, and kind in your responses.

Fifth, I would like to thank both past and present laboratory mates, who have cheered me on through every program and personal milestone. Many thanks to those in the Child Development and Family Relationships laboratory, including Drs. Ju-Hyun Song, Paige Safyer, Patty X. Kuo, Emma Beyers-Carlson, Matthew M. Stevenson, Lauren Bader, and Lin Tan, who all have been extremely generous in sharing their knowledge and insights about how to successfully go through the doctoral program, run complex developmental models, the best places to eat in Ann Arbor. I would like to also thank Yeonjee Bae and Kaitlin P. Ward for their camaraderie and support. My gratitude extend to those at the Parenting in Context Laboratory as well. This includes Dr. Heather Knauer, Garrett T. Pace, Kailin P. Ward for the many collaborative projects we had over the years. I am grateful for the mutual support we shared for each other's and the lab's success. I would like to thank both undergraduate and graduate student with whom I had the privilege to work. Specifically, thank you Muzi Lin, Alex Lu, Jason Lam, Noah Streng, Parker Logue, and Olivia Chang for your dedication to each project we worked on together. I attribute the success of our research projects to the high quality of work you all put into individual and group tasks.

Sixth, I would like to thank those who are part of my cohort, friends at the University of Michigan, and peers I met through the Society for Social Work Research (SSWR) Fatherhood Special Interest Group (SIG). My cohort members, including Berenice Castillo, Cintia Huitzill, Ed-Dee G. Williams, Lisa Y. Larance, Vaness Cox, Petal Grower, Kevin Constante Toala and now Drs. Janelle Goodwill, Josefina Bañales, Danielle Labotka. Many thanks to each of you for allowing me to share in the journey of going through and completing the doctoral program with you. We shared many meals, music, laughter, and prayers along the way, which made being a doctoral student much more special and memorable. I am also grateful to those who have been a source of encouragement outside of my cohort. This includes Dr. Janelle Goodwill, Sunghyun Hong, Ronke G. Olawale, Charles E. Williams II, and now Drs. Pingui Wu, Min Hee Kim, and Tawfiq Ammari. Thank you for sharing your successes and challenges with me, which gave me the courage to do the same. I am especially thankful for the times we had with each other to pray for one another, our departments, university, and country at large, especially as we weathered the pandemic this past year. Two other individuals I would like to thank include Maggie Chen and Emily Ku, who agreed to serve as co-authors of my antiracism book, *Young, Proud, and Sung-jee*. Thank you for sharing your unwavering dedication to eradicate systemic racism in our communities and country by pouring in your talents, energy, money, and time into this project. I could not have imagined completing the book without your partnership. My gratitude also extends to my SSWR Fatherhood SIG peers, Rebecca Logue-Conroy, Justin Harty, Lara Markovitz, and Jaimie O'Gara. I have enjoyed our monthly meetings so much, where we share our work related to fatherhood research, personal and professional milestones, and just find space to vent about the challenges of parenting during COVID-19. Thank you for being a source or light and laughter in my life.

Seventh, I would like to thank my friends, including my three best friends from college, and those I met through H2O Campus Church here at Ann Arbor, Michigan. Thank you, Lydia Kim, Angie Fujishima, and Grace Chung, for your never-ending support, love, prayers for me. Thank you for making a trip out here, listening to my rants over the phone, calling in for my job talk practice and dissertation defense, and just being there whenever I need a buddy. You all wear many different hats all the while juggling caring for family members and other important responsibilities. You are an inspiration to me, and I thank you for giving me the strength to fulfil multiple roles as a researcher, teacher, clinician, wife, and mother. I am also indebted to my church community for their love for me and my family. Thank you especially to my core group members, Julie and Chris Payne, Cindy and Jonathan Fellows, and Andrew and Nancy Muyanja, for always asking for and praying for my needs and being there as a source of support and encouragement. I admire your love for God and the church, which was exceptionally felt when you all agreed to go through the Color of Compromise book study to critically look at the complicit role the Christian church played in perpetuating systematic racism in America. Thank you for approaching this topic with humility, honesty, and courage, despite some of the challenging conversations we had. I have not felt more empowered talking about race and racism in the United States, with a such a racially diverse group such as ours. Thank you for letting me witness godly unity and love. This also extend to other friends in my circle, including Nee and Joe Chucherdwatanasak, Dr. Tiwa Ajibewa, Dr. Tricia Jones and Jon Jones, Akima George, and Cathy Rabb, for sharing meals, offering to babysit, setting up playdates, and just checking in via text messages. I cannot be more grateful for all you have done to support me and my family throughout this doctoral journey.

Last but not last, I would like to thank my family members. Thank you Daniel S. Bai for supporting my career in both word and action. Selling your house in California and driving 2,000 miles to be here with me in Ann Arbor when you were still finishing up your master's degree is a testament of your love and care for me. Thank you for your sacrifice and hard work to support me and, more recently, Luka. You encouraged me that I could finish the doctoral program strong. Your faith in me never wavered and for that I am so grateful. I am further thankful to my son, Luka Z. Bae, for the delight that he is in my life. Watching you grow into a toddler and soon to be preschooler is magical. I am amazed at your ability to pick up on words so quickly, say "no" to things you dislike, learn to throw a ball forward, and so much more. Being a mother has been ten- and hundred-times fold more challenging than being a doctoral student, but I would not have it any other way. Having you while completing this dissertation brough so much joy into my life. You are absolutely wonderful, and I am extremely lucky to be you mother.

I would like to also thank my parents back in Busan, South Korea, for their relentless support in the forms of calls, text messages, prayers, and sending warm winter clothes. This also extends to my in-laws, including my brother- and sister-in-law. Thank you for always sharing words of love, care, and support with me and my family. I extend my gratitude to my paternal grandmother back in South Korea as well for her daily prayers for me. She has not missed a single day praying for me and my family. I stand on her shoulders and those of my deceased paternal grandfather and maternal grandparents. The love of my family was felt profoundly, especially when physical ties and social connections were exceptionally difficult during the pandemic. Your love and prayers have sustained me through the past six years and more and I am eternally grateful for that. Going forward, I hope to pour all the love you showed me into caring for Luka and advocating for the health and wellbeing of all children.

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ABSTRACT

This dissertation consists of three studies and follows a multiple manuscript format. The broader theme of the dissertation focuses on examining family processes underlying economic insecurity and young children's outcomes in unmarried parents with low income. All three studies involved secondary analysis of the Building Strong Families (BSF) data, a large and racially diverse sample of unmarried parent families from socioeconomically disadvantaged backgrounds. The dissertation focused on samples of mothers and fathers who were residential with each other and the child all or most of the time.

The first dissertation study was exploratory in that it used a person-centered approach to discern the existence of latent parenting profiles of unmarried mothers and fathers of preschoolers based on the father-child activation relationship theory (Paquette, 2004). The study used a sample of 672 BSF families. Observations of mother–child and father–child interactions were included in latent profile analysis to reveal 3 distinct parenting profiles for both fathers and mothers (i.e., supportive, activation, and intrusive), with the activation profile showing a pattern of moderate intrusiveness combined with sensitivity, positive regard, and cognitive stimulation. Next, four family configurations were created. Children with supportive mothers and fathers had higher receptive language scores compared with those from other family groups, and had higher prosocial scores compared with children with activation mothers and activation fathers, but not other family groups (i.e., activation father/supportive mother or supportive father/activation

mother). Results support activation relationship theory by noting a pattern of parenting behaviors used by fathers (and mothers) in which parents are moderately intrusive, challenging, or directive with their children, yet still sensitive and positive in their interactions.

The second dissertation study applied the Family Stress Model (FSM; Conger, Ge, Elder, Lorenz, & Simons, 1994) to test the mechanisms by which economic insecurity contributes to mothers' and fathers' mental health and couples' relationship functioning. The study used a sample of 2,794 BSF families. Bayesian mediation analysis was employed, taking advantage of the prior evidence base of the family stress model. Material hardship worked above and beyond household income to directly predict couples' destructive conflict for both mothers and fathers. Indirect effects of material hardship on couples' destructive conflict through parental depressive symptoms was found for mothers only. Overall, the economic stress of meeting the daily material needs of the family sets the stage for parental mental health problems that carry over into destructive interparental conflict, especially through maternal depressive symptoms.

Building on the findings of the first and second dissertation studies, the third dissertation study also applied the FSM to examine the links between material hardship, and preschoolers' prosocial behaviors and an examination of the coparenting alliance, and mother's and father's positive parenting as key mediators. The study used a sample of 1,375 BSF families. Structural equation modeling results showed that material hardship was associated with increased levels of father's positive parenting only and that coparenting alliance was linked with increased levels of both mother's and father's positive parenting. Subsequently, both mother's and father's positive parenting was related to increased levels of preschoolers' prosocial behaviors. The results suggest the potentially protective role a strong coparenting alliance plays amongst BSF mothers and fathers in the context of material hardship. That is, when unmarried mothers and fathers

maintain a strong coparenting bond amidst economic challenges, they may be able to engage in positive parenting, such as being responsive to their children's needs and thus promote their children's prosocial development.

Chapter 1 General Introduction

Poverty is a major concern in the United States, with nearly 34 million people living in poverty in 2019 (US Census Bureau, 2020). Young children are disproportionately subject to poverty with latest statistics available in 2019 showing that 15.5% of children under the age of 6 in the United States lived in poverty, which is defined as an annual income below $25,750 for a family of four (Haider, 2021; National Academies of Sciences, Engineering, and Medicine, 2019; US Department of Health and Human Services, 2019). These numbers are concerning given the vast amount of research showing the negative effects of poverty on child development. For example, children exposed to poverty early on tend to experience higher levels of emotional and behavioral problems, lower levels of academic achievement, cognitive skills, physical health, and self-regulation compared to children who were not exposed to poverty (Bradley & Corwyn, 2002; Duncan, Magnuson, Kalil, & Ziol-Guest, 2012; McLoyd, 1998; Roy, Isaia, & Li-Grining, 2019).

The timing and duration of poverty in childhood is important, with poverty experienced in early childhood and for a prolonged period of time being the most detrimental to children (Duncan et al., 2012; National Academies of Sciences, Engineering, and Medicine, 2019). Early childhood is when brain development is rapid with neural functions and structures taking shape for future cognitive, emotional, social, and health outcomes (Knudsen, Heckman, Cameron, & Shonkoff, 2006; Sapolsky, 2004). Young children are most sensitive to the impact of family poverty (Blair & Raver, 2016). For example, links between poverty and reduction in children's total gray matter volume, especially in areas responsible for executive function abilities, has been observed as early as infancy (Hanson et al., 2013). The impacts of poverty experienced in early childhood tend to persist, with research showing that approximately half of children born to poor parents living in poverty for half or more of their childhood (Ratcliffe & McKernan, 2012). Such

empirical evidence suggests that addressing family poverty early to alleviate its impact is critical for healthy child development and development across the lifespan.

Family processes and the quality of family relationships help explain the detrimental effects of poverty on child development. Research suggests that higher family income supports and improves parents' psychological wellbeing and family processes, especially the parent-child interaction quality (Chase-Lansdale & Pittman, 2002). By the same token, poverty and economic insecurity are likely to burden parents' mental health, which then contributes to parenting behaviors (McLoyd, 1990). Experiencing depressive symptoms and other psychological distress may affect the ways in which parents interact with their children (e.g., nonresponsive, hostile) (Zahn-Waxler, Duggal, & Gruber, 2002). Research has shown that parents facing economic hardship are more likely than their counterparts to use harsh parenting styles and provide their children with less cognitively stimulating learning experiences in the home (Duncan et al., 2012). Further, the stress of being poor can reduce parents' relationship quality. This can lead to interparental conflict and subsequently decreased father involvement, which have been linked with negative child outcomes (Aneshensel, 1992; McLanahan, 2002; Ram & Grimm, 2009; Lee, Pace, Lee, & Altschul, 2019).

Dissertation Focus and Description

This dissertation aimed to examine family processes linking family poverty and young children's behavioral outcomes in unmarried parent families with low income. This group of families have become a growing concern for many scholars and policymakers given that they experience multiple stressors and systematic barriers—including unemployment, poverty, systemic racism, relationship instability, mental health issues, and parenting stress—that are linked to their parenting and ultimately to their children's development and wellbeing (Brown,

2010; Kopystynska, Paschall, Barnett, & Curran, 2017). There are limited parenting resources and services, especially those that include both mothers and fathers in the same household, for parents from socioeconomically disadvantaged families. Studying the specific mechanisms underlying poverty and child outcomes in families in low income can inform the development of interventions that best serve them. This dissertation makes an important contribution to the literature by employing a well-established family process theoretical framework, namely the Family Stress Model (FSM: Conger, Ge, Elder, Lorenz, & Simons, 1994), to a large and diverse sample of poor, unmarried families with young children. The proposed methods include advanced statistical procedures, such as latent profile analysis, Bayesian mediation analysis, and structural equation modeling with a second-order latent variable to better understand family processes that play out in relation to economic insecurity and child behavior outcomes. Another strength of this dissertation is its use of data from mothers and fathers. To date, relatively few studies have examined these processes in dual-parent families from socioeconomically disadvantaged backgrounds employing both mothers' and fathers' data within the same study.

The current dissertation takes a three-study format. All three studies used samples of residential father families from the Building Strong Families (BSF) project, a large-scale randomized controlled trial of a healthy marriage and relationship education intervention for over 5,000 racially diverse unmarried parent families with young children (Wood, McConnell, Moore, & Clarkwest, 2010). All three dissertation studies focused on residential father families, and the rationale for this decision was based on evidence that family processes in residential father families are likely different from those in nonresidential father families, given the different levels of access fathers have to their children based on their residential status. (Fagan & Palkovitz, 2012; Lee, Volling, Lee, & Altschul, 2020). Residential father families were defined as those in

which fathers were living with their children and the mothers all or most of the time based on prior research (Fagan, Levine, Kaufman, & Hammar, 2016).

Informed by prior work (e.g., Volling, Stevenson, Safyer, Gonzalez, & Lee, 2019), the first study of the dissertation focused on exploring mothering and fathering parenting profiles using a person-centered approach. This study sheds light on a theorized parenting construct that was developed with fathers in mind (i.e., activation parenting) and shows the positive association it has with children's socioemotional outcomes (Paquette, 2004). The second study focused on testing the links between economic insecurity—defined as income poverty and material hardship—and the interparental relationship, with mother's and father's depressive symptoms as mediators. A Bayesian mediation analysis was conducted to incorporate prior knowledge available in the family stress literature. The third study tested the links between material hardship, coparenting alliance, mothers' and fathers' positive parenting (i.e., responsiveness) and child prosocial behaviors. Structural equation modeling with a second-order coparenting alliance latent variable was employed to capture the dyadic nature of coparenting between mothers and fathers.

Theoretical Framework for the Dissertation

This dissertation primarily employed the Family Stress Model of economic hardship (FSM; Conger, Rueter, & Conger, 2000; Conger et al., 1994), which is depicted in Figure 1.1. The FSM posits that economic instability in the form of low family income and negative financial events, such as material hardship affect parenting via emotions, behaviors, and relationships among family members, ultimately negatively impacting child adjustment. Specifically, economic pressure felt from low family income and negative financial events contribute to both fathers' and mothers' mood, which then contribute to negative relationship

quality between parents (i.e., couple's conflict). FSM further hypothesizes that poor relationship quality between parents leads to less nurturing and involved parenting, which are ultimately detrimental to children's developmental outcomes.

FSM was initially developed with poor farming families in rural Iowa during the Great Farm Crisis in the 1980s. The majority of participants in Conger and Elder (1994)'s seminal study were White and married couples with adolescent children. Thus, scholars have pointed out the need to test the model with more diverse families (in terms of race and ethnicity and family structure) and families with young children, using longitudinal data (Barnett, 2008; Conger, Conger, & Martin, 2010). Subsequent studies have replicated and extended FSM using more diverse samples, including unmarried parents in urban communities (Cassells & Evans, 2017; Conger et al., 2002; Curran et al., 2021; Masarik & Conger, 2017; Parke et al., 2004). For example, Mistry, Lowe, Benner, and Chien (2008) tested the family stress model with a racially diverse sample of mothers with low income and their 6- to 15-year-old children and found that increases in total family income were associated with decreases in families' difficulties meeting financial needs. Families' difficulties meeting financial needs were positively associated with increases in mothers' mental health problems, which in turn, were linked with lack of parental control and less responsiveness by the mothers. Lack of parental control was linked with increased levels of child behavior problems and decreased levels of positive child behaviors. Maternal responsiveness was associated with increased levels of positive child behaviors only.

More recently, Curran et al. (2021) conducted longitudinal analyses examining the reciprocal relations between financial difficulties, parental depressive symptoms, destructive interparental conflict, and coparenting alliance. Although the researchers tested these associations using a sample from the BSF project, given their focus on conducting cross-lagged

analyses, they did not demonstrate how family processes involving economic insecurity are linked ultimately with children's development. Collectively, these results suggest that despite efforts to address previous recommendations (Barnett, 2008; Conger et al., 2010), additional work is needed to test the FSM longitudinally including children's development as outcomes and using racially diverse unmarried parent samples where both mothers' and fathers' data are available. This dissertation addresses some of these gaps in prior research.

The dissertation was further informed by adaptions of the FSM. Gershoff and colleagues (Gershoff, Aber, & Raver, 2003; Gershoff, Aber, Raver, & Lennon, 2007) modified the FSM to include material hardship as a key predictor along with low family income to examine how the two variables influence child outcomes (e.g., social-emotional competence). Gershoff et al. (2007), using the Early Childhood Longitudinal Study-Kindergarten Class, tested the direct and indirect paths between family income and child outcomes and between material hardship and child outcomes. This study found that increased family income reduced parents' stress almost entirely through reducing material hardship, highlighting the importance of examining material hardship as a potential mediator. According to the United States Department of Health and Human Services' Office of the Assistant Secretary for Planning and Evaluation, material hardship refers to direct measures of families' food insecurity, residential instability, inadequate medical care, and financial difficulty paying bills (Ouellette, Burstein, Long, & Beecroft, 2004). Gershoff's adaption of the FSM and its focus on testing associations between family income, material hardship, and family outcomes informed the dissertation to investigate links between economic insecurity and child outcomes.

Paquette's (2004) father-child activation relationship theory also informed the current dissertation, especially dissertation study 1. Paquette's (2004) theory posits that fathers play an

important role in developing children's exploration of the world because fathers tend to engage in behaviors that excite, surprise, and temporarily destabilize their children. Paquette coined the term *father–child activation relationship* to represent a relationship that satisfies children's needs to be stimulated, take risks for exploration, and face obstacles, and find solutions to overcome them. Paquette (2004) further noted that father–child activation relationships develop primarily through physical play. In particular, fathers' modification of the intensity of play from highly arousing to less arousing based on children's cues of tolerance for emotional stimulation plays a critical role in children's development of self-regulation and social competence. More broadly, fathers' activation parenting can be viewed as a type of positive parenting fathers engage in to benefit their children's development.

In summary, informed by the FSM, a prior adaptation of the FSM, and the father-child activation relationship theory, the current dissertation tested the FSM while also incorporating elements, such as material hardship and fathers' positive parenting (e.g., activation relationship), from prior research. A conceptual model for the current dissertation is depicted in Figure 1.2. Consistent with FSM and Gershoff et al.'s (2007) adaptation of FSM, the conceptual model includes mothers' and fathers' depressive symptoms, interparental relationship quality (i.e., destructive interparental conflict and coparenting relationship quality), mothers' and fathers' involvement (i.e., activation parenting, responsiveness), and children's developmental outcomes (e.g., prosocial behaviors, receptive language). This conceptual model was applied to data from the BSF project that followed families for approximately 36 months with three main data collection points: (1) Baseline when families enrolled (i.e., mothers and fathers expecting or recently had a baby); (2) 15 months after enrollment; (3) and 36 months after enrollment. Where possible, the dissertation study aimed to used data from all three time points.

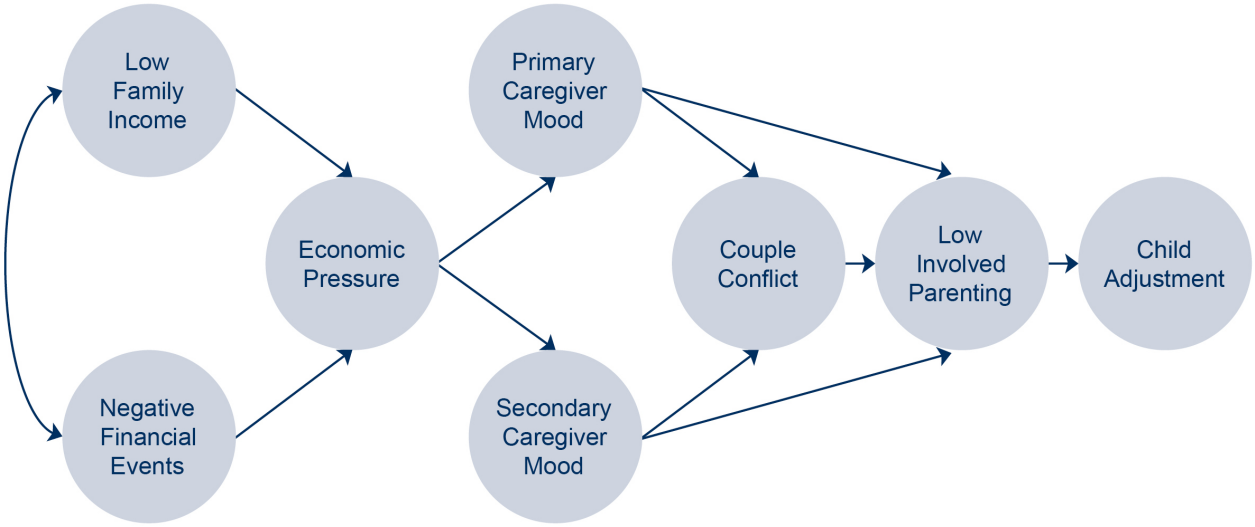

Figure 1.1. The original family stress model.

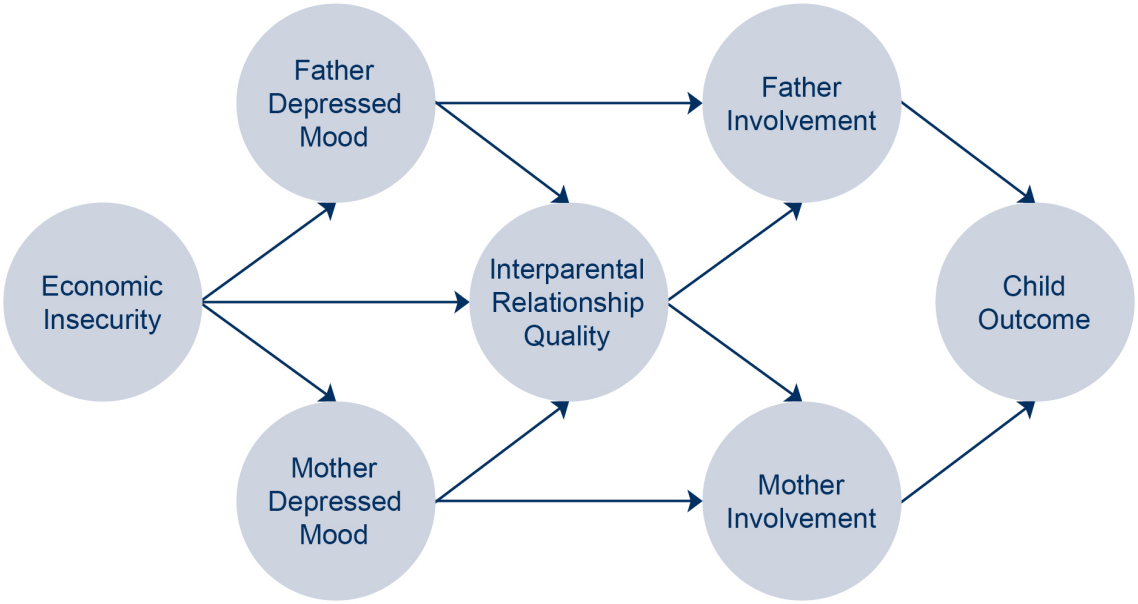

Figure 1.2. Conceptual model for the dissertation.

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Chapter 2 (Dissertation Study #1): Testing the Father-Child Activation Relationship Theory: A Replication Study with Low-Income Unmarried Parents*

*Lee, J. Y., Volling, B. L., & Lee, S. J. (2020). Testing the father-child activation theory: A replication study with low-income unmarried parents. *Psychology of Men & Masculinities.* Advance online publication. doi:10.1037/men0000301

Research on father involvement and its role in child development has dramatically increased in the past several decades (Jeynes, 2016; Lamb, 2010; Sarkadi, Kristiansson, Oberklaid, & Bremberg, 2008). Theoretical models highlight the father–child relationship and its role in facilitating child development (Cutler & Palkovitz, 2020; Grossmann et al., 2002; Paquette, Gagnon, & de Medeiros, 2020). Father–child activation relationship theory (Paquette, 2004) proposes that fathers play an important role in fostering children's exploration of the world because fathers tend to engage in behaviors that excite, surprise, and temporarily destabilize their children. Fathers also encourage children to take risks while simultaneously providing safety and security. In addition, Paquette (2004) argued that such fathering behaviors help children take more initiatives in unfamiliar contexts, engage in exploration, and overcome challenges. Paquette coined the term *father–child activation relationship* to represent a relationship that satisfies children's needs to be stimulated, take risks for exploration, and face obstacles, and find solutions to overcome them.

Paquette (2004) further posited that the father–child activation relationship is developed primarily through physical play (i.e., rough-and-tumble), which helps children develop self-regulation and social competence. During physical play, Paquette (2004) claimed that the fathers' modification of the intensity of play from highly arousing to less arousing based on children's cues of tolerance for emotional stimulation plays a critical role in children's development of self-regulation. Fathers tend to be more intrusive, which involves controlling, stimulating, directing, and sometimes interfering with children's autonomy during interactions compared with mothers (Craig, 2006; John, Halliburton, & Humphrey, 2013; Lindsey, Caldera, & Rivera, 2013; National Institute of Child Health and Human Development [NICHD] Early Child Care Research Network, 1999; Volling, McElwain, Notaro, & Herrera, 2002).

Parental intrusiveness refers to the degree to which parents control and direct interactions interfere with their children's autonomy (Andreassen & Fletcher, 2007; Brady-Smith et al., 2013; Ispa et al., 2013). Intrusiveness in itself represents a single parenting dimension and needs to be carefully considered in the context of other parenting behaviors (e.g., sensitivity, cognitive stimulation). Many parents living in poverty use more intrusive or directive parenting with their young children than parents with more economic privilege (Bradley, Corwyn, McAdoo, & Coll, 2001; Tamis-LeMonda, Briggs, McClowry, & Snow, 2009). For instance, research with low-income, ethnic minority mothers has found that some mothers are more directive in their interactions with children than others, using more intrusive parenting behaviors in conjunction with sensitivity, positive regard, and cognitive stimulation (Brady-Smith et al., 2013; Ispa, Carlo, et al., 2015; Ispa, Claire Cook, Harmeyer, & Rudy, 2015; Ispa et al., 2013). This pattern represents a directive parenting style, in contrast to a more intrusive or harsh parenting style that combines intrusive parenting with negative parenting behaviors, such as negative regard and detachment (Brady-Smith et al., 2013; Hazen, McFarland, Jacobvitz, & Boyd-Soisson, 2010).

Parental intrusiveness occurring in the presence of a number of positive parenting behaviors is likely to have different outcomes for children than if occurring in the presence of negative parenting behaviors (Hazen et al., 2010). A similar situation may very well describe how some fathers interact with their children, which is why this profile involving moderate levels of intrusive/controlling behavior in combination with stimulating and sensitive behaviors has been referred to as activation fathering in previous research assessing Paquette's (2004) father–child activation relationship theory (Stevenson & Crnic, 2013; Volling, Stevenson, Safyer, Gonzalez, & Lee, 2019). In the current study, we continue with this tradition and refer to a pattern of parenting involving moderate levels of intrusiveness with high levels of sensitivity,

positive regard, and stimulation of cognitive development as activation parenting, in contrast to intrusive or harsh parenting in which intrusiveness occurs in the absence of positive parenting behaviors.

Dissertation Study 1

The current study examined activation parenting among a sample of low-income fathers and mothers participating in the BSF study. For the first aim, we used a person-centered statistical approach to conduct LPA and explored whether there was an activation parenting profile that described both fathers' and mothers' interactions with their preschoolers during observations of a semistructured, free-play task. Based on Volling et al.'s (2019) research with fathers and mothers, we hypothesized that an activation parenting profile characterized by moderate levels of sensitivity, positive regard, and cognitive stimulation, as well as moderate levels of intrusiveness and low levels of detachment, would emerge for both fathers and mothers. Consistent with previous research, we also hypothesized that additional parenting profiles would emerge describing supportive parenting (i.e., high sensitivity, positive regard, cognitive stimulation, and low intrusiveness and detachment); intrusive parenting (i.e., high intrusiveness and low sensitivity); and disengaged parenting (i.e., high detachment; Brady-Smith et al., 2013; Ryan et al., 2006; Volling et al., 2019). Although we expected that these different profiles would emerge for both fathers and mothers, we also hypothesized that the activation profile would describe more fathers than mothers. Further, because parents may use a more directive parenting style with older children (e.g., 36-month olds) than with infants (e.g., 12-month-olds; Fagot & Kavanagh, 1993), we anticipated that even though similar profiles might be found (e.g., supportive, activation), the percentages of mothers and fathers in each might differ from earlier work.

The second aim was to determine if fathers and mothers in the same family interacted similarly or differently with their preschoolers. Thus, we examined associations across resulting profiles for mothers and fathers. The final aim was to create family groups based on mothers' and fathers' profiles and examine the links between these family groups and children's behavior problems, effortful control, receptive language, emotional security, and prosocial behaviors. Given the exploratory nature of the current study, we did not advance any directional hypotheses related to this aim. Overall, the current study makes an important contribution to the literature by (a) testing father–child activation relation- ship theory (Paquette, 2004); (b) replicating findings of Volling et al. (2019), using a large and diverse sample of socioeconomically disadvantaged families from the BSF data set; and (c) extending previous research to examine group differences in young children's developmental outcomes across family groups.

Method

The Building Strong Families Project

Data were from the BSF project, a large-scale demonstration and evaluation of a healthy marriage and relationship education program conducted between 2005 and 2011 across eight cities in the United States for low-income, romantically involved, and unmarried heterosexual couples who were expecting or recently had a baby together (Wood, McConnell, Moore, & Clarkwest, 2010). The project was sponsored by the Office of Planning, Research and Evaluation in the Administration for Children and Families, U.S. Department of Health and Human Services, and developed, implemented, and evaluated by Mathematica Policy Research with the goal to strengthen unmarried, socioeconomically disadvantaged couples' relationships so that they could create stable and healthy home environments for their children (Office of Planning, Research, & Evaluation, 2008; Wood, Moore, Clarkwest, & Killewald, 2014).

Procedure

The BSF project recruited 5,102 couples from hospitals, maternity wards, prenatal clinics, health clinics, and special nutritional programs for women, infants, and children. Couples were eligible to enroll if (a) both the mother and father agreed to participate in the intervention, (b) the couple was romantically involved, (c) the couple was either expecting a baby together or had a baby younger than 3 months old, (d) the couple was unmarried at the time the baby was conceived, and (e) both parents were 18 years and older (Wood et al., 2010). After recruitment, Mathematica Policy Research obtained participants' written consents and randomly assigned couples into an intervention group (n = 2,553) or a control group (n = 2,549).

The BSF intervention focused primarily on providing 30 to 42 hr of relationship skills education in the form of group sessions, with each group session ranging from 2 to 5 hr depending on the day of the week, whereas control group couples could seek relationship skills education from other sources but were not provided with the BSF intervention services (see Wood et al., 2014, for full details of the BSF intervention and evaluation).

Data collection occurred at three time points in the BSF project: baseline (enrollment in the project), the 15-month follow-up, and the 36-month follow-up from enrollment in the BSF intervention. Observations of mother–child and father–child interactions were conducted as part of the 36-month follow-up. Because BSF was designed to evaluate an intervention, the data collection time points do not exactly correspond to the children's age. According to BSF documentation, the average of children was 42 months at the time the mother–child assessment was conducted and 44 months for the father–child assessment (Moore et al., 2013). Children's socioemotional developmental outcomes were available at the 36-month follow-up but not at the 15-month follow-up. The institutional review board—Health Sciences and Behavioral Sciences

at the University of Michigan—determined that secondary analyses of BSF data were exempt from institutional review board oversight.

Participants

Participants in the current study were 672 mothers and fathers who took part in the 36-month follow-up observational assessments of parent–child interactions of a semistructured, free-play task across five BSF programs (i.e., Atlanta, Baton Rouge, Houston, Indiana counties, Oklahoma City; Moore et al., 2013). To create the analytic sample from the initial 5,102 families, 602 mothers from the Baltimore site were excluded because none of the fathers participated in the observational task. The parent– child observational component of BSF primarily involved parents who were residential with each other and the child *all* of the time at the 36-month follow-up. As such an additional 1,364 mothers and 1,614 fathers not residing with the child at the 36-month follow-up and 308 mothers and fathers not residing with each other at the 36-month follow-up were excluded. Finally, 542 mothers and fathers without observational data were excluded. The final ana- lytic sample for the current study was $n = 672$ families. Among these families, there were 622 families with complete data from both parents, 38 families missing father data, and 12 families missing mother data. Table 1.1 shows sociodemographic information of the analytic sample.

Measures

Parenting behaviors. Mothers and fathers were observed in independent parent–child interaction sessions during home visits. Mother–child interactions were conducted first and then father– child interactions. Fathers' and mothers' parenting behaviors were observed and videotaped separately during the two-bags task (Administration for Children & Families, 2002), a 10-min semistructured, free-play interaction task between the parent and child that was

modified from the three-bags task of the NICHD Study of Early Child Care (NICHD Early Child Care Research Network, 1999). Two-bags were placed on a mat on the floor and parents were asked to spend time playing with the children using objects in the two bags. The parent was instructed first to open Bag 1, which included a book before moving on to Bag 2, which included pretend play toys. The parent was told that they could divide the 10 min between the two bags however they chose. Eighteen trained coders rated a total of six parenting behaviors and four child behaviors from the parent–child interaction videos in a centralized location, using the same rating system as the NICHD Study of Early Child Care Research Network (Moore et al., 2013; NICHD Early Child Care Research Network, 1999). Only the parent behaviors were used in the current study's LPA analyses to create parenting profiles.

The rating system used a 7-point rating scale ranging from 1 (*not at all characteristic*) to 7 (*very characteristic*) to code: (a) *sensitivity*—the ability to perceive and accurately interpret the child's behavior and respond appropriately; (b) *intrusiveness*— interventions or overstimulation that impinge on the child's independence and are more parent-centered than child-centered; (c) *detachment*—lack of involvement and disengagement with the child; (d) *positive regard*—demonstrating positive feelings toward the child; (e) *negative regard*—demonstrating negative feelings (e.g., criticism, harsh tone) toward the child; and (f) *stimulation of cognitive development*—scaffolding the child's cognitive development during the task.

Child behavior problems. Child behavior problems were assessed with 21 items from the Behavior Problem Index (Peterson & Zill, 1986; Zill, 1985). The items included child internalizing (e.g., "Child is too fearful or anxious") and externalizing (e.g., "Child is disobedient") behavior problems. These items are similar to those from the Child Behavior Checklist (Achenbach, 1991), which has been used in previous research examining father–child

relationship and preschool-aged children's behavior problems (Gaumon & Paquette, 2013). Mothers rated the 21 items on a 3-point scale ranging from 1 (*often true*) to 3 (*never true*). The scale was reverse coded and recoded from 0 (*never true*) to 2 (*often true*) so that higher points represent higher levels of child behavior problems. A composite child behavior problems variable was created by averaging the items (α = 0.84).

Child prosocial behaviors. Child prosocial behaviors were assessed with nine items from the Social Interaction Scale of the Preschool and Kindergarten Behavior Scales–Second Edition (Merrell, 2002). The items represent young children's positive behaviors (e.g., "Comforted other children who were upset") in the past 3 months. Items from the Social Interaction Scale have been adapted for use in large surveys, such as the Early Childhood Longitudinal Survey–Birth Cohort and University Preschool Child Outcome Study (Moore et al., 2013). Mothers rated the nine items on a 4-point scale ranging from 1 (*often*) to 4 (*never*). The scale was reverse coded so that higher scores represented higher levels of child prosocial behaviors. A composite child prosocial behaviors variable was created by averaging the nine items (α = 0.77).

Child emotional insecurity. Child emotional insecurity was assessed with 10 items from the Security in the Marital Subsystem- Parent Report Inventory (Davies, Forman, Rasi, & Stevens, 2002). These items included the child's reactions to seeing arguments and disagreements between parents in the past month (e.g., "[CHILD] couldn't seem to calm down after you argued"). Mothers rated these items on a 4-point scale from 1 (*often*) to 4 (*never*). Items were reverse coded so that higher scores represented higher levels of child emotional insecurity amid interpersonal conflict. A composite child emotional insecurity variable was created by averaging the items (α = 0.84).

Child receptive language. Child receptive language was assessed using the Peabody Picture Vocabulary Test 4 (PPVT- IV; Dunn & Dunn, 2007). PPVT-IV is a norm-referenced standardized test designed to directly measure children's knowledge of word meanings. The researcher presents a series of words that range from easy to difficult and are accompanied by a plate consisting of multiple pictures. The child is instructed to indicate which picture best matches the word presented by the researcher. A series of child errors suggest that the level of difficulty is becoming too great for the child at which point the researcher stops the task. The PPVT has been used in similar large surveys, such as the Fragile Families and Child Wellbeing Study (Bendheim-Thoman Center for Research on Child Well- being, 2019).

Child effortful control. Child effortful control was assessed using the Walk-a-Line-Slowly task (Kochanska, Murray, Jacques, Koenig, & Vandegeest, 1996), which involved asking the child to walk down a straight line made with a 6-foot-long blue ribbon placed on the floor (Moore et al., 2013). The task had a baseline trial and two slow trials and was coded using the duration in minutes and seconds it took for the child to complete each trial. To be consistent with Kochanska et al. (1996), all minutes were converted to seconds, and the mean of the two slow trials were used as the final score for child effortful control.

Analysis Plan

To identify parenting profiles, a person-centered LPA analysis (Bergman & Magnusson, 1997) was conducted using Mplus 8.3 (Muthén & Muthén, 2017) for fathers and mothers separately because each parent was observed in independent parent–child dyadic interaction sessions at the 36-month follow-up. To determine model fit and the appropriate number of profiles, the Bayesian information criteria (BIC), entropy, and Lo-Mendell-Rubin adjusted likelihood ratio test (LMR-A) were used. Smaller BIC values represent better fit. Entropy is used

to determine profile distinctiveness, and values closer to 1 indicate better profile distinction. LMR-A is used to assess for significant improvement in fit of a *k* model, where *k* indicates the number of groups, compared with a *k*-1 model. A significant LMR-A result suggests a preference for the *k* model over the *k*-1 model.

LPA results from Mplus were subsequently imported to Stata 15.1 (StataCorp, 2017), where χ^2 analyses were conducted to determine associations across fathers' and mothers' profiles in the same family. This specifically allowed for investigating whether mothers and fathers had similar or different parenting profiles within the same family and to further create family groups (e.g., supportive mother/supportive father, supportive mother/activation father). One-way analyses of variance were then used to examine mean differences in children's developmental outcomes across the different family groups.

Results

Preliminary Results

Descriptive statistics of the analytic sample can be found in Table 1.1. All sociodemographic information was obtained from baseline. Mean comparisons using paired samples *t* tests showed no significant differences between mothers and fathers across all six parenting behavior variables (i.e., sensitivity, detachment, positive regard, negative regard, intrusiveness, and cognitive stimulation).

Person-Centered Analyses for Mothers' and Fathers' Parenting

Latent profiles of fathering. The three-profile model, BIC = 10,395.70, entropy = 0.84, LMR-A = 270.37, $p = .04$, was considered the best fitting model for fathers because there was a decrease in BIC and an increase in entropy relative to the two- profile model, BIC = 10,626.89 and entropy = 0.82. The four- profile had a lower BIC (BIC = 10,277.66) than that of the three-

profile model, but its entropy was smaller (entropy = 0.83), and the LMR-A suggested no improvement for a four-profile model over a three-profile model, LMR-A = 159.67, p = .11.

The means for the three-profile model are provided in Table 1.2. The first and largest profile was labeled the *supportive* profile (n = 350, 55.21%) because fathers in this group had the highest levels of sensitivity, positive regard, and cognitive stimulation with the lowest levels of intrusiveness, detachment, and negative regard. We labeled the next profile the *activation/directive* profile (n = 221, 34.86%) because it closely matched the activation profile found by Volling et al. (2019), with fathers using moderate levels of intrusiveness in combination with relatively high levels of sensitivity, positive regard, and cognitive stimulation, and low levels of detachment. The final and smallest profile was labeled the *intrusive* profile (n = 63, 9.94%) because fathers demonstrated the highest levels of intrusiveness, detachment, and negative regard with the lowest levels of sensitivity, positive regard, and cognitive stimulation.

Latent profiles of mothering. The three-profile model, BIC = 10,663.94, entropy = 0.79, LMR-A = 254.96, p = .17, was also considered the best fitting model for mothers. In the three-profile model, there was a decrease in BIC relative to that of the two-profile model (BIC = 10,879.07) although an increase in BIC relative to the four-profile model (BIC = 10,242.37). The three-profile model had a high entropy (entropy = 0.79), but the two-profile and four-profile models had slightly higher values for entropy, 0.83 and 1.00, respectively. Moreover, neither the LMR-A comparing the two-profile and three-profile models, LMR-A = 254.96, p = .17, nor the LMR-A comparing the three-profile and four-profile models, LMR-A = 456.97, p = .16, was significant, making it somewhat unclear which model to select.

Given the exploratory nature of this work, we decided to choose the three-profile model because Volling et al. (2019) found three distinct parenting profiles for mothers, which matched

the three profiles found here. The means for the three-profile model are provided in Table 1.2 and reveal three similar profiles for mothers as found for fathers. The first profile was labeled the *supportive* profile (n = 171, 25.91%) with the highest levels of sensitivity, positive regard, and cognitive stimulation and the lowest levels of intrusiveness, detachment, and negative regard. The largest profile for mothers, however, was the *activation*/*directive* profile (n = 381, 57.73%), with mothers showing moderate levels of intrusive- ness combined with moderately high levels of sensitivity, positive regard, and cognitive stimulation. The last profile was labeled *intrusive* (n = 108, 16.36%) because it revealed a pattern with the highest levels of intrusiveness, detachment, and negative regard and the lowest levels of sensitivity, positive regard, and cognitive stimulation.

In sum, separate parenting profiles for mothers and fathers were created based on the person-centered LPA. Results showed three parenting profiles for both mothers and fathers: (a) supportive (i.e., high levels of sensitivity, positive regard, cognitive stimulation, and low levels of intrusiveness, negative regard, and detachment); (b) activation/directive (i.e., moderate levels of intrusiveness but also moderately high levels of sensitivity, positive regard, and cognitive stimulation); and (c) intrusive (i.e., high levels of intrusiveness and low levels of sensitivity, positive regard, and cognitive stimulation). There were no significant relations between the main family groups and sociodemographic variables, including mothers' and fathers' age, education, ethnicity/race, work status, income, couples' relationship length, and BSF project random assignment status. Next, cross tabulations and χ^2 tests were used to created family profiles using both mother and father data.

Family-Level Relationships Across Mothers' and Fathers' Profiles

The χ^2 tests demonstrated a significant association between mothers' and fathers' parenting profiles, χ^2 (4) = 28.49, p = .001, which can be seen in Table 1.3. The largest group of families comprised a supportive father and an activation mother (n = 189, 30%), followed by families with both an activation father and activation mother (n = 130, 21%), and families with both a supportive father and supportive mother (n = 113, 18%). The remaining family groups were families with an activation father and a supportive mother (n = 44, 7%), an activation father and intrusive mother (n = 44, 7%), a supportive father and an intrusive mother (n = 41, 6.6%), an intrusive father and activation mother (n = 39, 6%), an intrusive father and intrusive mother (n = 17, 2.7%), and an intrusive father and a supportive mother (n = 5, 0.8%). Cell sizes were small for some of these family groups. As such, we focused on four main family groups, which are described more specifically in the next section, for our follow-up analyses.

Benefits of Activation Fathering to Children's Developmental Outcomes

To examine the links between family profiles and child out- comes, four family groups of interest were created for comparisons: (a) supportive mother and supportive father families (n = 113, 23.74%); (b) supportive mother and activation father families (n = 44, 9.24%); (c) activation mother and activation father families (n = 130, 27.31%); and (d) activation mother and supportive father families (n = 189, 39.71%). These four groups were selected because they allowed us to determine if children's outcomes differed depending on whether children had a supportive or activation parent; whether there was none, one, or two activation parents in the home; and whether having an activation father predicted better child outcomes. In other words, we were interested in whether children needed to have a supportive parent to exhibit positive outcomes and, relatedly, whether activation/directive parenting served as a risk factor that undermined children's developmental outcomes.

To determine associations between activation fathering and children's development, one-way analyses of variance with family group as the between-subjects factor and each of the child outcomes as the dependent variables were conducted. Findings demonstrated significant main effects of family group for children's prosocial behaviors, $F(3, 472) = 5.20$, $\eta_p^2 = 0.03$, and receptive language, $F(3, 305) = 11.21$, $\eta_p^2 = 0.10$. Means can be found in Table 1.4. Children in families with a supportive mother/supportive father had significantly higher prosocial scores compared with children in families with an activation mother/activation father, but did not differ significantly from children in families with an activation father/supportive mother or supportive father/activation mother. For children's receptive language, children from supportive mother/supportive father families had significantly higher language scores compared with children from all three family groups. There were no significant main effects of family group for children's behavior problems, effortful control, and emotional insecurity. The family groups did not differ on child sex for mothers' and fathers' parenting behaviors.

Discussion

The current study aimed to replicate and extend previous research on activation fathering, using a large and diverse sample of low-income families with young children. The main findings provide further evidence for an activation parenting profile, described by moderate levels of intrusiveness *and* moderate levels of positive behaviors including sensitivity, positive regard, and cognitive stimulation (Paquette, 2004; Paquette et al., 2020; Ryan et al., 2006; Stevenson & Crnic, 2013; Volling et al., 2019), which is also similar to the directive parenting profile found in several studies of low-income mothers from racially and ethnically diverse backgrounds (Brady-Smith et al., 2013; Ispa, Carlo, et al., 2015; Ispa, Claire Cook, et al., 2015; Ispa et al., 2013). Large numbers of both mothers and fathers fit the activation/directive parenting profile in this

sample of low-income couples with preschoolers. The current study replicated a number of previous studies, including Ryan et al. (2006) who used a diverse sample of low-income couples with a 24-month-old child and the three-bags task, Brady-Smith et al. (2013) who used a sample of low-income mothers with a 12- month-old infant and the three-bags task, and Volling et al. (2019) who used a sample of predominantly middle-class couples with a 12-month-old infant and a challenging teaching task.

In particular, our findings map on to what Ryan et al. (2006) found—a parenting profile for both mothers and fathers they labeled as "somewhat supportive," which was characterized by moderately intrusive parenting behaviors but also relatively high sensitivity, positive regard, and cognitive stimulation parenting behaviors. Although the researchers did not call this parenting profile the activation or directive profile, the patterns among the parenting behaviors are similar to those found by others for fathers (Stevenson & Crnic, 2013; Volling et al., 2019), low-income mothers (Brady-Smith et al., 2013), and in the current study. By using data from the BSF project, we have shown that the activation profile indeed describes some low-income fathers' and mothers' interactions with their young children.

Emergence of Distinct Parenting Profiles: Supportive, Intrusive, and Activation

In the current study, the activation mother/supportive father group was the largest (30%), followed by the activation mother/ activation father family group (21%), and then the supportive mother/supportive father family group (18%). At first glance, our results seem to differ from those of Volling et al. (2019), who found that the activation mother and activation father family group was the largest family group (29.89%) followed by the supportive mother and supportive father family group (11.41%), as well as Ryan et al. (2006), who found that the supportive mother and supportive father family group was the largest family group (62%) followed by the

supportive mother and unsupportive father family group (15%) and the unsupportive mother and supportive father family group (15%). These differences may be due, in part, to differences in sample characteristics, age of the children, and/or observational methodology across studies. However, a more careful look suggests that our results may align with previous research.

In particular, Ryan et al. (2006) merged the "highly supportive" and "somewhat supportive" clusters into a single "supportive" cluster for both mothers and fathers in creating family groups. This resulted in the supportive mother and supportive father group being the largest family group (62%), which approximates what we find if we too merge the activation group (akin to the "some- what supportive" group in Ryan et al., 2006) with the supportive group (69%). Similarly, the researchers created a single "unsupportive" cluster from the "detached" or "negative" cluster, yielding 15% of families falling into the unsupportive mother and supportive father family group. A similar recoding convention, where the intrusive group is recoded as the unsupportive group and the activation group is recoded as part of the supportive group, resulted in a similar percentage of unsupportive mothers and supportive fathers in our study (13.6%). Altogether, the above evidence underscores the emergence of distinct parenting profiles (i.e., supportive, intrusive, and activation) across studies, with the percentages of family groups resembling each other among studies that focus on socioeconomically disadvantaged samples.

Interestingly, we found that the proportion of fathers with a supportive parenting profile (55.21%) was greater than that of mothers with a supportive parenting profile (25.91%). This seems inconsistent with previous research, which found that middle-class (Volling et al., 2019) and low-income (Ryan et al., 2006) mothers were more likely than their counterpart fathers to be characterized by supportive parenting. Volling et al. (2019) found that 41.1% of the mothers and 24.1% of the fathers had a supportive parenting profile, and Ryan et al. (2006) showed that

46.62% of the mothers and 33.76% of the fathers had a supportive parenting profile. Relatedly, we found that more than half of the mothers (57.73%) in our sample displayed an activation parenting profile compared with about a third of the fathers (34.86%) with the same profile. Although we cannot know for certain why this might be the case without additional research in this area, one possible explanation may be due to the nature of the two-bags task which involves object-directed toy play, a style of play often seen in mother–child interactions, and not physical play, which may be preferred and more accurately capture fathers' activation behaviors (Lamb, 2010; Paquette et al., 2020). Consequently, mothers may demonstrate activation or directive parenting by using more control and instruction (that might be coded as intrusive) during the semistructured, free-play task while also maintaining positive mother– child interactions, a finding in line with arguments put forth by Ispa and colleagues (2013). Fathers may spend most of their time in the same free-play session playing with their children, being sensitive to and praising their children and not be as concerned about teaching or instruction requiring more control.

It is worth noting that the BSF sample experienced high levels of socioeconomic disadvantage, and the fact that a large proportion of mothers in our sample exhibited an activation profile is consistent with previous research showing that mothers living in poverty endorse or engage in directive parenting behaviors, which is characterized by moderate levels of sensitivity and low levels of negative regard coupled with directive/intrusive behaviors (Bradley et al., 2001; Brady-Smith et al., 2013; McFadden & Tamis-LeMonda, 2013). Using data from the Early Head Start Research and Evaluation Project, Brady-Smith et al. (2013) found that almost a third of all mothers in their sample displayed the directive parenting profile. Ispa et al. (2015) demonstrated in a sample of low-income black mothers with their toddlers that directive

parenting behavior involving mothers' physical intervention during semistructured, free-play with their children usually occurred in the context of positive maternal affect, with the goal to show or instruct children how to play with toys. This description of directive parenting fits well with the activation profile found here for both fathers and mothers.

That said, it is important to underscore that the exclusively intrusive parenting profile (i.e., high on intrusiveness but low on sensitivity, positive regard, and stimulation of cognitive development) described few parents in our study and was the smallest group of mothers (16.36%) and fathers (9.94%). Thus, far more parents used "intrusive" behaviors while also responding sensitively, attempting to stimulate their children's cognitive development and doing so while holding their children in high regard, than engaging in predominantly intrusive and controlling behaviors with negative regard for the child. Relatedly, the intrusive mother/ intrusive father family group was less than 3% of the sample, suggesting that researchers may be advised to consider a more person-focused approach when investigating parenting, in general, and certainly in highly socioeconomically disadvantaged families, where the activation/directive profile describes significant numbers of fathers and mothers.

Use of a Person-Centered Approach and Children's Developmental Outcomes

A key advantage of the current study was its use of a person- centered approach, which allowed for an examination of parenting behaviors in context, with a specific focus on parental intrusiveness. Parental intrusiveness happening in conjunction with positive parenting behaviors likely produces different outcomes for children than when used in conjunction with negative parenting behaviors (Hazen et al., 2010). A person-centered approach allowed us to test this assumption directly. Recall that Paquette (2004) argued that mothers provide comfort and support in the context of a secure mother–infant attachment relationship (i.e., supportive

parenting), whereas fathers encourage exploration and social competence in the context of the father–infant activation relationship. In this view, the supportive mother/activation father family group is also likely to yield positive outcomes for children, and our results indicate this was the case. Children in the supportive mother/activation father families did not differ on prosocial behaviors, behavior problems, effortful control, and emotional insecurity from children in families with both a supportive mother and supportive father. Without taking a person-centered approach, we would not have uncovered these family-level patterns that considered intrusive behavior in context with other parenting behaviors. A variable-centered approach, in contrast, primarily focuses on intrusiveness alone isolated from other parenting variables and may provide a very different picture of intrusive and controlling behavior that has negative consequences for children. Indeed, a follow-up analysis of the BSF data in which we correlated parents' intrusiveness with the five child outcomes in this study showed that mothers' intrusiveness was significantly associated with lower levels of children's effortful control, $r = -0.12$, $p < .01$, and receptive language, $r = -0.25$, $p < .001$, and fathers' intrusiveness was significantly associated with higher levels of children's behavior problems, $r = .09$, $p = .02$, and lower levels of children's prosocial behaviors, $r = -0.12$, $p < .01$, effortful control, $r = -0.10$, $p = .02$, and receptive language, $r = -0.12$, $p = .02$.

The only instance where there appeared to be an advantage for children when having a supportive mother and supportive father was children's receptive language scores, in which these children scored significantly higher compared with children in the other three family groups. Thus, having a supportive mother and a supportive father may be beneficial for young children's language acquisition. This is consistent with Ryan et al.'s (2006) finding in which children with both a supportive mother and father scored higher on the Bayley Mental Development Index than

all other children, as well as meta-analyses that have found a link between sensitive and responsive parenting and children's language development (Madigan et al., 2019). Children exposed to sensitive and responsive parenting behaviors were 2.8 times more likely to develop strong language skills compared with children who were not surrounded by such parenting behaviors. In fact, families' socioeconomic status moderated this relationship, with stronger effect sizes for low and diverse socioeconomic status groups compared with middle and upper socioeconomic status groups. There was a stronger positive association between parental sensitive responsiveness and children's language for low socioeconomic status families than for middle to upper socioeconomic status families, suggesting that parental sensitive responsiveness is especially beneficial for children's language development when children are raised in socioeconomically disadvantaged families (Madigan et al., 2019). Overall, sensitive and responsive parenting is believed to help create a secure attachment that aids in children's exploration and, in turn, builds their neural architecture for joint attention and language (Ainsworth, Bell, & Stayton, 1974; Wade, Browne, Madigan, Plamondon, & Jenkins, 2014).

With respect to children's prosocial behaviors, families with a supportive mother/supportive father exhibited significantly higher child prosocial behaviors compared with families with an activation mother/activation father, but not other family groups (including families with supportive mother/activation father). In other words, having an activation father in the family was just as beneficial for children's prosocial development as having a supportive father, especially when the mother was supportive. Previous research suggests that father–child relationship quality (along with mother–child relationship quality) may be linked with children's prosocial development (McHarg, Fink, & Hughes, 2019; Richaud de Minzi, 2013). Using a sample of 387 middle-class families with children aged 8–12, Richaud de Minzi showed that

fathers' (as well as mothers') perspective taking—the ability to place oneself in another person's place and understand their feelings—was positively linked with children's perspective taking, suggesting that fathers (and mothers) are likely to help promote their children's cognitive empathy.

Regarding the remaining child outcomes, including behavioral problems, emotional insecurity, and effortful control, there were no differences across family groups. According to the current findings, children's socioemotional and behavioral development was similar when there was an activation father (or mother) in the family as having a supportive father. In general, our findings seem to lend support for Paquette's (2004) father–child activation relationship theory and the argument that fathers' engagement in arousing, stimulating, and challenging behaviors, which may ap- pear intrusive at first, can contribute to children's socioemotional competence when also accompanied by a number of positive parenting behaviors. Importantly, child sex differences did not bear out in the parenting practices across family groups, suggesting that these parenting profiles did not differ in families with boys or girls.

Limitations and Future Directions

The current study has a number of limitations to consider. The models in the current study were cross-sectional, given that observational parenting and child outcome data were only available at a single point in the BSF study, which limits our ability to draw conclusions about potential causality between the parenting pro- files and various child outcomes. As such, findings should be interpreted with this limitation in mind, and future studies should aim to use longitudinal data.

The study was exploratory in nature, as the literature on the father-activation relationship is nascent and empirical research supporting the father–child activation relationship theory is

currently limited in number. This study's results along with those of Volling et al. (2019) and Ryan et al. (2006) are beginning to provide some evidence of an activation fathering profile that future research can now use to formulate more specific hypotheses.

Results from this study cannot be generalized to a larger group of low-income, unmarried couples with young children because families in this study volunteered to participate in the BSF project to receive relationship skills education, had to stay together for 3 years, and completed all of the research protocols. Use of population-level, representative samples is needed to advance research on activation relationship theory further.

There are limitations to the observational measure and coding system used to test activation relationship theory, as neither the two-bags task nor the available observational codes were initially designed to assess and test fathering in the manner described here and instead, were paradigms and coding systems designed with mothers in mind. As such, the two-bags task likely creates a context that favors mothers' style of object-mediated and pretend play over fathers' preference for physical play (John et al., 2013; Paquette et al., 2020). Given that fathers tend to engage in more arousing and stimulating physical play than mothers, a play task free of toys to promote such behaviors would have been preferable. Further, the two-bags task may not lend itself to providing opportunities for fathers to engage with their children in play behaviors that involve risk-taking and rough-and-tumble play. This limitation may explain why we found more fathers with the supportive profile than those with the activation profile. Future research should employ observational paradigms that involve physical play tasks (Paquette et al., 2020), such as "Get Up" (Fletcher, StGeorge, & Freeman, 2013) or "Sock Wrestle" (Fletcher et al., 2013), that may result in risk-taking and rough-and-tumble play behaviors and thus more accurately capture the activation parenting behaviors as theorized by Paquette (2004).

Observational coding systems designed specifically to measure the risk-taking, challenging, and destabilizing behaviors of father–infant activation relationship theory are sorely needed to advance research in this area so that researchers no longer have to rely on secondary analysis of data based on methods and procedures designed to assess mother–child interactions.

In addition to physical play tasks, more *challenging* tasks than the two-bags free-play used in the current study might better capture activation behaviors. For example, a cleanup task (Kochanska et al., 1996) where a parent is instructed to direct and put pressure on their child to help clean up toys may better capture activation parenting behaviors. Mothers' gentle guidance during the cleanup task describes a style of parenting in which parents exert control but in a warm and supportive manner that encourages children's compliance in contrast to the use of power assertion (Blandon & Volling, 2008; Kochanska, Aksan, & Koenig, 1995; Kochanska, Brock, & Boldt, 2017; Kochanska et al., 1996). Indeed, this controlling yet gentle guidance that benefits children's self-regulation could potentially represent activation parenting. The term *intrusiveness* has a negative connotation and meaning for many researchers, and it is often used to refer to suboptimal parenting behaviors. Future research on fathering and parenting, in general, may benefit by using alternative terms with less negative connotation, such as *directiveness* (Ispa et al., 2013), gentle guidance or control (Kochanska et al., 2017), or challenging parenting behavior (Majdandžic´, de Vente, & Bögels, 2016) that align with the core dimensions of activation relationship theory.

Our secondary analyses took advantage of the available child outcomes in the BSF data set, but father– child activation relation- ship theory has specific hypotheses about which aspects of children's development would benefit. For example, the theory does not articulate that activation parenting predicts children's prosocial behaviors or receptive language, but rather

children's exploration, openness to the world, risk-taking, and competition. Such variables were not available in the BSF data set, preventing direct theory-testing as it relates to predicted child outcomes. Future research would benefit by considering the behavioral outcomes of children that would be predicted to be fostered by activation parenting.

Finally, we used a subsample of BSF families in which all fathers were residential with the mother and the child all of the time because the majority of observational data were collected from residential father families and not available for families in which fathers had varying residential statuses. Our analytic sample is likely to have some unique characteristics. Because family processes including parenting are likely to be different for families with a nonresidential and residential father (Lee, Volling, Lee, & Altschul, 2020), future research should consider examining nonresidential fathers' parenting profiles or use fathers' residential status as a moderator. We would not necessarily expect the results to be the same for nonresidential fathers as those found here for residential fathers.

Notwithstanding these limitations, the study has a number of strengths, such as employing a large and racially diverse sample of low-income families with young children, and using a person- centered approach to test the father–child activation relationship theory, with the aim of replicating and extending previous research on this topic. Currently, Paquette's (2004) theory and its conceptualization of the activation parenting profile is being tested in a number of ways (for details, see Bocknek et al., 2017; Lazarus et al., 2016; Majdandžic´ et al., 2016; Stevenson & Crnic, 2013; Volling et al., 2019), with these researchers referring to this emerging parenting pattern by various terms, including *stimulating*, *directive*, or *challenging*. We preferred to use the term *activation parenting*, as this term could be linked directly to Paquette's (2004) theory and the earliest study by Stevenson and Crnic (2013), who created an activative parenting

composite describing fathers using moderate levels of intrusiveness while also maintaining a high degree of sensitivity and positive regard for children. The critical point to communicate here is that despite such differences in naming conventions, researchers are starting to break from the maternal template of the sensitive and responsive mother as the ideal parent and explore alternative parenting profiles based on a theory of father–child relationships. This new parenting profile that includes stimulating, controlling, and challenging behavior while being sensitive and responsive to the needs of children, is displayed by both fathers and mothers, and in the end, opens up new avenues for research on parenting and children's development.

Conclusion

Consistent with the father–child activation relationship theory, the current study found an activation profile for fathers, as well as mothers. In this regard, key findings from previous studies, including Ryan et al. (2006) and Volling et al. (2019), were replicated using a large and diverse sample of low-income unmarried couples with young children. The current study also extended previous work by examining the associations between family profiles and children's behavioral, language, and socioemotional development. Sensitive and responsive mothering has been held as the optimal style of parenting for positive child outcomes in developmental and parenting research. When comparing different families in the current study, children in families with a supportive and activation parent did not differ in socioemotional outcomes compared with children with two supportive parents. Specifically, moderately intrusive parenting behaviors, as long as they are accompanied with a number of positive parenting behaviors, should not be automatically viewed as negative parenting by fathers or mothers. Notably, groups of intrusive mothers and intrusive fathers, who were indeed high on intrusiveness, negative regard and detachment, and low on positive parenting behaviors, characterized few parents in this highly

socioeconomically disadvantaged sample. Researchers may need to consider alternate models of parenting that do not rely on and equate sensitive and responsive mother– child interactions based on traditional theories of mother–child attachment as the ideal parenting construct. Such an approach may limit our understanding of father– child relationships and the manner in which fathers' (and mothers') activation parenting contributes to children's development.

Table 1.1. *Sample Characteristics*

Variable	*M* (*SD)* or %
Mother's age (range: 18-41 years)	23.60 (4.86)
Father's age (range: 18-52 years)	25.96 (5.92)
Couple's ethnicity and race:	
Black	41.92%
White	24.85%
Latinx	22.56%
Other	10.67%
Couple's education:	
Neither parent has high school diploma	15.09%
One parent has high school diploma	33.54%
Both parents have high school diploma	51.37%
Couple married (Yes)	10.61%
Mother's employment status (Yes)	28.22%
Father's employment status (Yes)	81.36%
Mother's income in the past year:	
0 = None	22.59%
1 = $1-$4,999	31.73%
2 = $5,000-$9,999	20.60%
3 = $10,000-$14,999	9.14%
4 = $15,000-$19,999	7.14%
5 = $20,000-$24,999	4.49%
6 = $25,000-$34,999	3.16%
7 = $35,000 or above	1.16%
Father's income in the past year:	
0 = None	3.27%
1 = $1-$4,999	13.75%
2 = $5,000-$9,999	14.57%
3 = $10,000-$14,999	21.28%
4 = $15,000-$19,999	17.51%
5 = $20,000-$24,999	14.08%

6 = $25,000-$34,999	10.15%
7 = $35,000 or above	5.40%
Couple's relationship length in years	3.37 (3.25)
Child's gender (Boy)	44.85%
Assignment in the BSF program (Intervention)	52.88%

Note. $N = 672$. Variables from baseline when couples enrolled in the BSF program. BSF = Building Strong Families.

Table 1.2. *Means in Parenting Behaviors for Mothers' and Fathers' Three-Profile Solutions*

	Supportive Profile		Activation Profile		Intrusive Profile				Total Sample	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	$\square_p^2$	*M*	*SD*
Mothers' parenting behaviors										
Sensitivity	5.83_a	0.47	4.57_b	0.56	2.88_c	0.64	956.04***	0.74	4.62	1.09
Intrusiveness	2.17_a	0.75	3.11_b	0.89	4.30_c	1.19	181.27***	0.36	3.06	1.13
Detachment	1.73_a	0.57	2.48_b	0.83	3.67_c	1.18	173.80***	0.35	2.48	1.04
Positive Regard	5.30_a	0.64	4.29_b	0.70	3.27_c	0.87	273.87***	0.45	4.38	0.97
Negative Regard	1.58_a	0.56	2.11_b	0.74	3.31_c	1.18	159.39***	0.33	2.17	0.96
Cognitive Stimulation	4.92_a	1.14	3.97_b	0.95	3.56_c	0.98	75.80***	0.19	4.15	1.11
Fathers' parenting behaviors										
Sensitivity	5.33_a	0.53	3.86_b	0.48	2.51_c	0.59	1065.27***	0.77	4.54	1.09
Intrusiveness	2.49_a	0.79	3.56_b	0.97	4.38_c	1.30	166.87***	0.35	3.05	1.13
Detachment	1.92_a	0.67	2.85_b	0.97	4.10_c	1.23	209.43***	0.40	2.46	1.10
Positive Regard	4.73_a	0.75	4.06_b	0.67	2.75_c	0.93	205.73***	0.40	4.30	0.96
Negative Regard	1.68_a	0.68	2.34_b	0.93	3.65_c	1.32	155.35***	0.33	2.11	1.04
Cognitive Stimulation	4.36_a	1.06	3.79_b	1.03	3.27_c	1.12	39.35***	0.11	4.05	1.12

Note. Fathers' profiles (total $n = 634$): supportive profile ($n = 350$); activation profile ($n = 221$); intrusive profile($n = 63$). Mothers' profiles (total $n = 660$): activation profile ($n = 381$); intrusive profile ($n = 108$); supportive profile ($n = 171$). Scores with different subscripts are statistically different across groups based on post-hoc tests using Bonferroni corrections. *F* values relate to tests of significance of group difference among four groups; *F* values for mothers were $F(2, 657)$ and *F* values for fathers were $F(2, 631)$. $\square_p^2$ = partial eta squared. *** $p < 0.001$.

Table 1.3. *Relations Between Latent Profiles of Fathering and Mothering*

	Mother Activation Profile	Mother Intrusive Profile	Mother Supportive Profile	Total
Father Supportive Profile	189 (30%)	41 (6.6%)	113 (18%)	343
Father Activation Profile	130 (21%)	44 (7%)	44 (7%)	218
Father Intrusive Profile	39 (6%)	17 (2.7%)	5 (0.8%)	61
Total	358	102	162	$N = 622$

Note. $\chi^2(4) = 28.49$, $p < 0.001$

Table 1.4. *Mean Differences in Child Outcomes for Different Parenting Profiles*

Child Outcomes	Supportive Mother Supportive Father (n = 113)		Supportive Mother Activation Father (n = 44)		Activation Mother Activation Father (n = 130)		Activation Mother Supportive Father (n = 189)				Total Sample (*N* = 672)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	$\square_p^2$	*M*	*SD*
Prosocial Behaviors	2.54_a	0.37	2.44_{ab}	0.48	2.31_b	0.53	2.41_{ab}	0.46	(3, 472) 5.20**	0.03	2.38	0.50
Behavioral Problems	0.42	0.23	0.39	0.25	0.45	0.27	0.43	0.26	(3, 472) 0.87	0.01	0.44	0.26
Emotional Insecurity	1.37	0.40	1.36	0.34	1.40	0.47	1.41	0.50	(3, 458) 0.26	0.00	1.40	0.49
Effortful Control	4.67	2.87	4.82	2.56	4.00	2.94	4.01	2.10	(3, 434) 2.43	0.02	4.07	2.45
Receptive Language	101.64_a	15.30	92.11_b	13.96	94.37_b	14.74	88.83_b	16.38	(3, 305) 11.21***	0.10	91.29	16.78

Note. Scores with different subscripts are statistically different across groups based on post-hoc tests using Bonferroni corrections. *F* values relate to tests of significance of group difference among four groups. $\square_p^2$ = partial eta squared. ** $p < 0.01$, *** $p < 0.001$.

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Chapter 3 (Dissertation Study #2): Examining Mechanisms Linking Economic Insecurity to Interparental Conflict Among Unmarried Couples*

*Lee, J. Y., Lee, S. J., Volling, B. L., & Grogan-Kaylor, A. C. (under review). Examining mechanisms linking economic insecurity to interparental conflict among unmarried couples. *Family Relations*.

In the United States, it is estimated that 6.5 million families live in poverty (U.S. Census Bureau, 2020). In 2020, federal poverty guidelines established the poverty threshold of $26,200 for a family of four (e.g., 2 parents and 2 children) (U.S. Department of Health and Human Services, 2020). As such, an alarming number of young children are growing up impoverished, with approximately 44% of families with children under the age of 3 living in poverty in 2016 (Koball & Jiang, 2018). The deleterious effects of poverty on children are well-documented, including poor physical health, lower academic achievement, developmental delays, emotional and behavior problems, and exposure to family and neighborhood violence to name a few (Brooks-Gunn & Duncan, 1997; Evans, 2004). Research suggests that poverty functions through key family processes to negatively impact children's development and that such processes include parental mental health and interparental relationship quality (Conger et al., 1994; McLoyd, 1990; Parke et al., 2004). Economic insecurity has shown to contribute to decreased parental mental health and thus relationship conflict. These factors in turn are related to harsher parenting practices and, eventually, poor child outcomes (McLoyd, 1990).

Although low household income has been a large focus of poverty research, material hardship is common among American families. The majority of families with low income (70%) reported experiencing material hardship related to difficulties paying for housing, utilities, food, or medical in the past year (Karpman et al., 2018). Material hardship has also been shown to be more strongly related to parental depressive symptoms than income poverty, suggesting that household income alone may not be useful for distinguishing wellbeing among families with low income (Gershoff et al., 2007; Hurwich-Reiss et al., 2019; Zilanawala & Pilkauskas, 2012). The current study aims to examine how having limited economic resources, including both income and material goods, is detrimental to parental wellbeing and interparental relationship quality in

socioeconomically disadvantaged families. It extends prior work on families' economic stress by accounting for both household income and material hardship to better understand whether these factors differ in their effects on parental mental health and relationship functioning among mothers and fathers experiencing high levels of socioeconomic disadvantage.

Theoretical Framework: Family Stress Model

The current study employed the Family Stress Model (FSM; Conger & Elder, 1994) as its guiding framework. The FSM was developed to understand the impact on families of the economic insecurity caused by the Great Farm Crisis in the 1980s. The initial studies were conducted with majority white farming families in rural Iowa. This early research provided support for the tenets of FSM, demonstrating that economic insecurity is linked to poor child outcomes through its effects on parents' psychological functioning, relationship quality, and parenting behaviors (Conger et al., 1990, 1994). Since those seminal early studies, FSM has been widely expanded to examine the processes that link economic insecurity and poverty to parenting and child outcomes among diverse populations, including families with low income in urban contexts (Cassells & Evans, 2017; Masarik & Conger, 2017; McLoyd, 1990; Parke et al., 2004).

In our application of the FSM, we expanded the theory to include material hardship as a measure of economic insecurity. Material hardship is operationalized to include whether families have medical care, residential stability, and the ability to pay monthly bills (Ouellette et al., 2004). These factors extend beyond an objective measure of income to encompass the difficulties that families may face "making ends meet," even when income may be above the poverty threshold. The majority of households with low income or those between 100% and 200% of the poverty threshold experience high levels of material hardship (Gershoff et al., 2007). Prior research has shown that material hardship may better capture poverty related stress and strain

than low household income (Gershoff et al., 2007). Given the large body of research testing the FSM, we used Bayesian statistics to directly incorporate previous empirical evidence into our models that examine how economic insecurity functions to impact unmarried couple families' wellbeing and relationship functioning.

Fathers' Breadwinner Role and Vulnerability to Economic Hardship

Broadly speaking, the breadwinner role has long been considered a defining feature of traditional fatherhood (Christiansen & Palkovitz, 2001). The breadwinner role is a central focus of how many men who live in poverty define their success as fathers (Edin & Nelson, 2013; Marsiglio & Roy, 2012). Yet fulfilling the expectations of the breadwinner role may be particularly challenging for fathers with low income. The expectation is that men "step up" economically by contributing to their families' financial stability, even if they are nonresidential and not living with their children. Stepping up means providing financial resources to purchase material goods and services for enhancing children's development and wellbeing (Edin & Nelson, 2013), but fathers with low income often lack access to the employment opportunities and resources to be able to "step up" financially (Marsiglio & Roy, 2012). Fathers who are unable to "step up" and fulfill the breadwinner role may experience increased depressive symptoms and negative partner relationship quality. Qualitative research suggests urban unmarried fathers' lack of employment and financial support for their families being factors contributing to delays of marriages and even relationship conflicts with mothers (Edin & Nelson, 2013; Edin & Kefalas, 2005).

Dissertation Study 2

The current study aimed to use the FSM to investigate the mediating pathways between economic insecurity and family relationship functioning through several possible paths: First, we

hypothesized that the effects of low financial resources (i.e., household income) on mothers' and fathers' depressive symptoms would be mediated by a sense of material hardship (H1). Second, we hypothesized that mothers' and fathers' depressive symptoms would mediate the associations between material hardship and partner relationship functioning, particularly the use of destructive conflict behaviors to settle disagreements (H2). Finally, families' material hardship was hypothesized to be directly associated with increased levels of couples' destructive conflict for both mothers and fathers (H3). The current study takes advantage of the well-established research base on FSM by using a Bayesian approach to mediation analysis, which has the benefit of mathematically incorporating prior empirical information into our models in the form of prior distributions and thus building directly on the previous evidence base. The study employs a large and diverse sample of unmarried mothers and fathers with low income.

Method

The Building Strong Families Project

Data were from the BSF project, a large-scale demonstration and evaluation of a healthy marriage and relationship education program conducted between 2005 and 2011 across eight cities in the United States for low-income, romantically involved, and unmarried heterosexual couples who were expecting or recently had a baby together (Wood, McConnell, Moore, & Clarkwest, 2010). The project was sponsored by the Office of Planning, Research and Evaluation in the Administration for Children and Families, U.S. Department of Health and Human Services, and developed, implemented, and evaluated by Mathematica Policy Research with the goal to strengthen unmarried, socioeconomically disadvantaged couples' relationships so that they could create stable and healthy home environments for their children (Wood et al., 2010) .

Procedures

The BSF project recruited 5,102 couples from hospitals, maternity wards, prenatal clinics, health clinics, and special nutritional programs for Women, Infants, and Children (WIC). Couples were eligible to enroll if (a) both the mother and father agreed to participate in the intervention; (b) the couple was romantically involved; (c) the couple was either expecting a baby together or had a baby younger than 3 months old; (d) the couple was unmarried at the time the baby was conceived; and (e) both parents were 18 years and older (Wood et al., 2010). After recruitment, Mathematica Policy Research obtained participants' written consents and randomly assigned couples into an intervention group (n = 2,553) or a control group (n = 2,549), where the intervention received 30-42 hours of relationships education but not the control group.

Data collection occurred at three time points in the BSF project: baseline (enrollment in the project), the 15-month follow-up, and the 36-month follow-up following enrollment in the BSF intervention. Because BSF was designed to evaluate an intervention, the data collection time points do not necessarily correspond to the children's actual age. Observations of mother-child and father-child interactions were conducted as part of the 36-month follow-up. According to BSF documentation, the age of the child was 42 months at the time the mother-child assessment was conducted and 44 months for the father-child assessment (Wood et al., 2010). Children's socioemotional developmental outcomes were available at the 36-month follow-up, but not at the15-month follow-up. The Institutional Review Board (IRB) at *institution blinded for review* determined that secondary analysis of BSF data was exempt from IRB oversight.

Participants

The analytic sample consists of 2,794 BSF families in which the father was residential with mother and child across all three data collection periods. Fathers' residential status was defined as living with the mother and child *all* or *most* of the time at each time point. To create

the analytic sample, 18 families with a deceased BSF partner were first excluded. Next, fathers' reports of their residential status with the mother and child were used to determine which families would be further excluded. At baseline, 1,023 fathers reported living only *some* or *none* of the time with the mother. As the majority of women were pregnant at baseline, question asking fathers' residential status with the child was not asked. At the 15-month follow-up, a total of 772 fathers reported living only *some* or *none* of the time with the mother and child. At the 36-month follow-up, 1,038 fathers reported living only *some* of *none* of the time with the mother and child. In sum, a total of 2,290 fathers reported living only *some* or *none* of the time with the mother and child across all three periods. These families were excluded. The final analytic sample was $N = 2{,}794$ families in which the fathers were consistently residential *all* or *most* of the time with the mother and child across all three time periods.

Measures

Couples' Destructive Interparental Conflict

Couple conflict measured at the 36-month follow-up survey was the dependent variable, which captured destructive interparental conflict behaviors as described by Cummings and Davies (2010). The measure had nine items that primarily represented moderate verbal aggression couples use that could be harmful to the partner relationship (e.g., "Partner blames me for things that go wrong," "Partner puts down my opinions, feelings, or desires"). Mothers rated the items on a 4-point scale from 1 = *often* to 4 = *never*. The scale was reverse-coded so that higher scores reflected more frequent use of destructive conflict behaviors. A composite variable was created by averaging the nine items ($\alpha = 0.84$).

Income Poverty

BSF families' income poverty measured at the 15-month follow-up survey was the independent variable and used both fathers' and mothers' reports of their individual incomes contributed to the family in the past month (i.e., "What were your total earnings in the past month before taxes and other deductions? Please include tips, commissions, and overtime pay"). Mothers and fathers were asked to provide a specific numeric amount for their monthly incomes. Both parents' reports were summed to create a composite variable that captures BSF families' income in the past month. The mean of the families' annual income was $28,360.20, which was approximately 150% of the federal poverty threshold for a family of four in 2005, which corresponds to the 100% and 200% of the poverty threshold definition of low-income families.

Material Hardship

Material hardship measured at the 15-month follow-up survey served as another independent variable, as well as a mediating variable. It used mothers' and fathers' reports of the following four indicators of economic hardship: (1) *ability to pay rent* assessed families' hardship paying rent or mortgage in the past year (i.e., "You could not pay the full amount of the rent or mortgage?") with a binary response of 0 = *No* or 1 = *Yes*; (2) *consistency of utilities* assessed hardship families' experienced related to utilities in the past year (i.e., "You had services turned off by the water, gas, or electric company or the oil company would not deliver oil in the past 12 months because you could not afford to pay the bill?") with a binary response of 0 = *No* or 1 = *Yes*; (3) *residential stability* assessed hardship families experienced related to housing in the past year (i.e., "You were evicted from your home or apartment because you could not pay the rent or mortgage"?) with a binary response of 0 = *No* or 1 = *Yes*; and (4) *medical care* assessed the hardship families experienced related to medical insurance (e.g., "Are you currently covered by Medicaid, [STATE/LOCAL FILL], or any other government program

that pays for medical care?") with a binary response of 0 = *No* or 1 = *Yes*. The medical care indicator was reverse-coded so as to be consistent with the other material hardship indicators. A response of 1 indicated the presence of medical hardship and 0 no medical hardship with respect to insurance coverage. Mothers' reports were used primarily to create a composite variable indicating families' material hardship, although where data from mothers were missing, fathers' reports were used to create a composite variable.

Parental Depressive Symptoms

Mothers' and fathers' depressive symptoms measured at the 15-month follow-up survey served as the primary mediating variables. Parents' depressive symptoms were measured by asking both mothers and fathers to report on a 12-item version of the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The CES-D assessed the prevalence of depressive symptoms (e.g., felt depressed, experienced sleep problems, and had difficulty concentrating) in the past week. Both parents rated the items on a 4-point scale ranging from 1 = *Rarely or none of the time* (less than 1 day in the past week) to 4 = *Most or all of the time* (5-7 days in the past week). The scale was reverse-coded so that higher scores reflected lower depressive symptoms. Composite variables were mothers ($\alpha = 0.85$) and fathers ($\alpha = 0.81$) were created by averaging the 12 items.

Sociodemographic Control Variables

A robust set of sociodemographic variables from baseline when the couples enrolled in the BSF program were used as control variables in all of the analytic models. Consistent with prior literature, these included mothers' and fathers' age, education (Sobolewski & Amato, 2005), ethnicity and race (DeNavas-Walt et al., 2011), employment status (Sayer et al., 2011), number of children BSF couples had together (Paulson et al., 2006), multiple partner fertility

(Turney & Carlson, 2011), couples' marital status (McLanahan & Beck, 2010), couples' random assignment status in the BSF group, BSF program site, and mothers' reports of receiving public welfare, which asked about whether the mother received cash welfare; food stamps; Medicaid; Supplemental Security Income; Women, Infants, and Children; or unemployment compensations. A sum score was created for mothers' reports of receiving public welfare. Fathers' additional financial support for the child, which asked how much the father covers the cost of raising the child on a scale of 1 = *All or almost all* to 5 = *Little or none*, was based on mothers' reports at the 15-month follow-up survey. The scale was reverse-coded so that higher scores reflected more cost of raising the child covered by the father.

Analysis Plan

Bayes Theorem

In the simplest terms, Bayes theorem and rule underlying it allow for reallocating credibility from prior explanations of a phenomenon to a set of updated explanations that account for new data (Kruschke & Liddell, 2018). There are several advantages to using Bayesian statistics over the frequentist approach (van de Schoot et al., 2014). First, Bayesian analysis allows for incorporating prior evidence (or lack thereof) into the analyses using new data. Prior beliefs can come from diverse sources, including clinical expertise and previous studies. This allows the researcher to account for prior evidence in the analysis of new data, which ultimately yields updated results in the form of posterior distributions. Second, Bayesian statistics provide a *credible* interval, specifically, a 95% credible interval which suggests that there is a 95% probability that the estimated value lies within the limits of the interval. Third, a Bayesian approach allows for directly testing the plausibility of both the null hypothesis *and* an alternative hypothesis. If there is more evidence for the null hypothesis given the data, the results prefer the

null over the alternative hypothesis and vice versa (for details, see Kruschke & Liddell, 2018; van de Schoot et al., 2014). Importantly, this process allows for the possibility of *accepting* the null hypothesis (Kruschke & Liddell, 2018). Finally, a Bayesian approach is useful for handling non-normal parameters because, unlike the frequentist approach, it does not require normal distributions of parameters in the model (van de Schoot et al., 2014).

Bayesian Mediation Analysis

The current study employed a Bayesian mediation analysis within a regression framework. Given the substantial evidence base of studies testing the family stress model, such prior information can be useful in informing the current study despite differences in measures and methodology. To fit a Bayesian mediation model, the current study used the 'brms' package available in R Version 3.61. Both informative and uninformative (or default) priors were used in the models. Informative priors give numerical information crucial to estimating a model, and such numerical information typically comes from a literature review or earlier data analysis (Gelman, 2007). A literature review was conducted for articles using similarly low-income and ethnic minority samples to test FSM. A total of 13 articles were reviewed (Conger et al., 2002; Derlan et al., 2019; Hardaway & Cornelius, 2014; Helms et al., 2014; Iruka et al., 2012; Landers-Potts et al., 2015; Martin et al., 2019; Newland et al., 2013; O'Neal et al., 2015; Parke et al., 2004; Ponnet, 2014; Shelleby, 2018; Simons et al., 2016). The articles were examined for their means and standard deviations of relevant regression paths (e.g., income to material hardship, material hardship to maternal depression). Means were averaged to create pooled means and whichever standard error information available in the articles were used as standard deviations for individual priors entered into the models.

With regards to the specific values in the maternal models, the income poverty to material hardship had an informative prior with M = -0.25 and SD = 0.07, and the material hardship to maternal depressive symptoms had an informative prior with M = 0.33 and SD = 0.07. The maternal depressive symptoms to couples' destructive interparental conflict had an informative prior with M = 0.25 and SD = 0.10, and the material hardship to couples' destructive interparental conflict had an informative prior with M = 0.01 and SD = 0.10. In the paternal models, the income poverty to material hardship had an informative prior with M = -0.29 and SD = 0.10, and the material hardship to paternal depressive symptoms had an informative prior with M = 0.26 and SD = 0.10. The paternal depressive symptoms to couples' destructive interparental conflict had an informative prior with M = 0.23 and SD = 0.10, and the material hardship to couples' destructive interparental conflict had an informative prior with M = 0.09 and SD = 0.10.

For the remaining regression paths in the model, including the links between the study's key variables and control variables, uninformative priors (M = 0, SD = 100) were used because of the complexity involved in pooling varied information pertaining to sociodemographic variables across studies. Sensitivity analyses were also conducted for different prior specifications. Effect sizes were estimated as the percentage of the model R^2 explained by the predictors. The credible interval represented the boundaries within which parameters of interest were expected to fall.

Missing Data

Stata's Version 15 missingness pattern analysis and logistic regression were used to examine missing data. Stata's missingness pattern analysis showed that data were missing in 0% to 33.46% (for fathers' depressive symptoms) of the cases. Data for family income and material hardship were missing in 28.13% and 18.97% of the cases, respectively. Data for mothers'

depressive symptoms were missing in 19.43%. Data for couples' destructive interpersonal conflict were missing in 32.96% of the cases. Across all sociodemographic control variables, data were missing in less than 3.33% of the cases with the exception of mothers' reports of receiving public welfare and fathers' additional financial support for the child, which had missing data in 16.89% and 22.26% cases, respectively.

Results from logistic regressions showed that missing cases for family income were missing at random (MAR), where missing values were significant associated with maternal depressive symptoms ($p = 0.03$), paternal depressive symptoms ($p = 0.04$), education level ($p = 0.01$), ethnicity/race ($p = 0.03$), and fathers' work status ($p = 0.01$). Missing cases for family material hardship were MAR as well, where missing values were significantly linked with fathers' work status ($p = 0.01$). Missing cases for fathers' depressive symptoms were MAR, with missing values significantly linked with family income ($p = 0.00$), fathers' age ($p = 0.04$), mothers' reports of fathers' additional financial support for the child ($p = 0.00$). Missingness of mothers' depressive symptom was MAR, with missing values significantly associated with mothers' multiple-partner-fertility ($p = 0.01$). Missing data for couples' destructive conflict were not significantly related to any of the observed variables in the analytic dataset, suggesting they were missing completely at random (MCAR). That said, the missing data mechanisms were more likely to be MAR given the possibility that missing cases in these key variables depended on the observed variable of the original BSF dataset.

Although listwise deletion is the default in R for Bayesian mediation analysis, multiple imputation (MI) was used to account for all cases and missing data patterns given that listwise deletion would result in losing approximately half of the analytic sample. MI is mechanism for handling missing data as it replaces each missing value with two or more acceptable values

representing a distribution of possibilities (Rubin, 2004). In particular, the 'mice' package R generates multiple imputations for incomplete multivariate data using Gibbs sampling, and the algorithm imputes missing data by generating plausible value given information from available data. Each column with missing data serves as a target and columns with complete data function as a set of predictors to produce imputation values (also known as massive imputation; van Buuren, 2020). The default method was used with predictive mean matching for variables with numeric data, logistic regression imputation for variables with binary data, and proportional odds model for variables with ordered categorical data. The number of multiple imputation was set to $m = 5$ (Rubin, 2004).

Results

Descriptive statistics is provided in Table 2.1. Results from the Bayesian mediation analysis can be found in Tables 2.2 and 2.3. Interpretations of the Bayesian mediation results are primarily based on the mean of the parameter estimate, as well as the 95% credible interval for the parameter estimate. When a two-tailed credible interval excludes 0, it suggests that there is a 95% probability that the parameter estimate is not 0. Four models were investigated: (1) material hardship as a mediator between family income and maternal depressive symptoms; (2) material hardship as a mediator between family income and paternal depressive symptoms; (3) maternal depressive symptoms as a mediator between material hardship and couples' conflict; and (4) paternal depressive symptoms as a mediator between material hardship and couples' conflict. All four models converged normally with individual chains in the models reaching a value close or equal to 1.

Family Income to Parental Depressive Symptoms via Material Hardship

Results of the model predicting maternal depressive symptoms indicated that material hardship was linked with higher levels of maternal depressive symptoms (estimate = 0.11, *SE* = 0.02, 95% CI: 0.08, 0.15). There was no direct link between family income and maternal depressive symptoms (estimate = -0.02, *SE* = 0.02, 95% CI: -0.05, 0.02). Mediation analysis confirmed that there was no indirect effect between family income and maternal depressive symptoms via material hardship (indirect effect = 0.00, 95% CI: -0.01, 0.00).

Similarly, results of the model predicting paternal depressive symptoms indicated that more material hardship was linked with higher levels of paternal depressive symptoms (estimate = 0.05, *SE* = 0.02, 95% CI: 0.01, 0.08). There were no direct links between family income and paternal depressive symptoms (estimate = -0.01, *SE* = 0.02, 95% CI: -0.04, 0.03). Mediation analysis testing the indirect effect confirmed that there was no indirect effect between family income and paternal depressive symptoms via material hardship (indirect effect = 0.00, 95% CI: 0.00, 0.00). Tables 2.2 and 2.4 provides additional details and summary of effects.

Material Hardship to Destructive Interparental Conflict via Depressive Symptoms

Results of the maternal model predicting couples' destructive interparental conflict indicated that more material hardship was linked with higher levels of maternal depressive symptoms (estimate = 0.11, *SE* = 0.02, 95% CI: 0.08, 0.15), which was then associated with higher levels of couples' destructive interparental conflict (estimate = 0.12, *SE* = 0.02, 95% CI: 0.08, 0.16). Material hardship was also directly linked with higher levels of destructive interparental conflict (estimate = 0.04, *SE* = 0.02, 95% CI: 0.01, 0.08). Mediation analysis testing the indirect effect confirmed that there was a small indirect effect between material hardship and couples' destructive interparental conflict via maternal depressive symptoms (indirect effect = 0.01, 95% CI: 0.01, 0.02).

Similarly, results of the paternal model predicting couples' destructive interparental conflict showed that more material hardship was linked with higher levels of paternal depressive symptoms (estimate = 0.05, *SE* = 0.02, 95% CI: 0.01, 0.08), which then was associated with higher levels of couples' destructive interparental conflict (estimate = 0.06, *SE* = 0.02, 95% CI: 0.02, 0.09). Material hardship was also directly linked with higher levels of destructive interparental conflict (estimate = 0.05, *SE* = 0.02, 95% CI: 0.02, 0.09). That said, mediation analysis testing the indirect effect showed no indirect effect between material hardship and couples' destructive interparental conflict via paternal depressive symptoms (indirect effect = 0.00, 95% CI: 0.00, 0.00). Table 2.4 provides additional details and summary of effects.

A hypothesis test comparing the direct effects of material hardship on couples' destructive interparental conflict from the maternal and paternal models showed that the two direct paths were not credibly different from each other (difference = 0.01, *SE* = 0.03, 95% CI: -0.04, 0.06). That is, material hardship's direct effect on a couple's destructive interparental conflict was the same for both mothers and fathers.

Sensitivity Analysis

Sensitivity analysis was conducted using uninformative and weakly informative priors. Uninformative priors with *M* = 0 and *SD* = 100 were used for every path in all four models. Results with uninformative priors were identical to those with informative priors. Further, two sets of weakly informed priors were used, which involved inserting the same values for *M*'s as the informative prior used in the main analyses but using multiples for *SD*'s. The first set of weakly informed priors involved two times the *SD*'s from the informative priors (e.g., *M* = -0.25 and *SD* = 0.07 x 2 = 0.14 for the income poverty to material hardship path in the maternal model). The second set of weakly informed priors involved three times the SD's (e.g., *M* = -0.25

and *SD* = 0.07 x 3 = 0.14 for the same path as above). Results with both sets of weakly informed priors were identical to those with informative priors. Overall, the sensitivity analysis findings suggested that no matter the different types of priors used, the overall patterns were similar. This is likely due to the relatively large sample size dominating the posterior (Lemoine, 2019).

Discussion

Using a large and diverse sample of unmarried two-parent families with low income, the current study investigated material hardship as a mediator between families' household income and fathers' and mothers' depressive symptoms, which were also examined as mediators between families' material hardships and couples' destructive conflict behaviors. In doing so, this study demonstrated the differential pathways by which family income and material hardship impact the wellbeing of families experiencing high levels of economic disadvantage. Another important contribution is the finding that the negative effects of material hardship on families were present even after controlling for families' low household income, which suggests that difficulties associated with making ends meet may be especially detrimental to healthy family functioning. The current study's strengths also include the use data from fathers, who have been largely left out in prior studies testing the family stress model. Bayesian analysis was used to test these relations. Use of a Bayesian approach allowed for incorporating research evidence from previous studies in the form of prior distributions and thus directly building on the available empirical evidence base, a key contribution of the current study to the literature.

Results of the study did not confirm the first hypothesis (H1). Specifically, for both mothers and fathers, material hardship did not mediate the links between unmarried couple families' household income and parents' depressive symptoms. This suggests that income and material hardship may have differential effects on parental functioning. Study findings partially

confirmed the second hypothesis (H2) by showing that parental depressive symptoms mediated the links between families' material hardship and couples' destructive interparental conflict behaviors for mothers but not fathers. Material hardship was associated with higher levels of maternal depressive symptoms, which was then linked with higher levels of couples' destructive conflict behaviors in the maternal model. While similar associations were present in the paternal model, the mediation analysis indicated that paternal depressive symptoms did not mediate the links between families' material hardship and couples' destructive interparental conflict behaviors. The third hypothesis (H3) was confirmed, with results demonstrating that families' material hardship was directly linked with couples' destructive interparental conflict, with material hardship predicting higher levels of destructive interparental conflict. Direct links were found for both mothers and fathers.

Associations Between Family Income, Material Hardship, and Parental Depression

In general, family income models were less robust than material hardship models for both parents, possibly suggesting a ceiling effect of family income amongst this highly economically disadvantaged sample in which the majority of families earned an annual household income of less than $30,000. That is, there was a general lack of predictive power in the family income models, which may be stemming from the consistently low levels of household income BSF families reported. Family income and material hardship were not related in any of the models in the current study. Although it makes sense that material hardship may stem from limited family income, empirical literature has found only moderate correlations between measures of income poverty and material hardship in families with low income (Hurwich-Reiss et al., 2019). Relatedly, a study with families eligible for public benefits, such as Temporary Assistance for

Needy Families, found that increased family income was not significantly associated with reduced material hardship (Lee et al., 2004). The current study findings support this research.

That said, the lack of mediation of material hardship in the associations between family income and parental mental health is inconsistent with prior large-scale studies that included both family income and material hardship as indices of economic insecurity (Gershoff et al., 2007; Simons & Steele, 2020). For example, Gershoff et al. (2007) found that material hardship mediated the association between family income and parents' stress (a latent variable including depressive symptoms, martial conflict, and parenting stress). However, Gershoff et al. (2007) used a sample that is majority White, middle-income, and married mothers with school aged children, which may explain some of the different results found between their and this study.

Parental Depression as a Mediator of Material Hardship and Couples' Conflict

Partially consistent with the family stress model is the finding that parents' emotional distress in the form of depressive symptoms mediated the associations between material hardship and couples' destructive conflict in their interparental relationships. Whereas the FSM does not propose differences in specific mechanisms for mothers and fathers, different relations of material hardship to destructive interparental conflict were found for mothers and fathers in the current study. Prior research has rarely included fathers and when studies that do, they tend to make the assumption that economic pressure functions similarly to impact mothers and fathers (Conger et al., 2000; Parke et al., 2004). Questioning this assumption, the current study found that the mechanisms linking economic instability to couples' relationship quality may in fact be different for mothers and fathers. Specifically, there was a small indirect effect in the maternal model predicting destructive interparental conflict from material hardship via maternal depressive symptoms. The paternal model did not demonstrate an indirect effect. This suggested

that material hardship operates through mothers' but not fathers' depressive symptoms to have an adverse effect on couples' interparental relationship.

This may be the case because mothers, many of whom are the primary caregivers (less than a quarter of the BSF mothers reported working), assume more domestic responsibilities meeting household needs and caring for their children than fathers even in two parent households. In a survey of 1,807 American parents, 64% of the mothers in two-parent households reported that they do more than their male spouse or partner when it comes to parenting tasks and 53% of the fathers agreed (Pew Research Center, 2015). All this to say that even in two-parent households where the father is residential, mothers are still taking on more parenting and related household work than fathers, and this may include managing finances and paying bills to meet their children and household needs. Realizing that their families cannot adequately make ends meet may negatively impact mothers' mental health more so than fathers' mental health and thus contributing to increased levels of negative interparental conflict behaviors. Similar results have been found where reports of economic pressure related to meeting the family's material needs (e.g., food, housing, medical services) were linked with parents' reports of depression and anxiety, which then was associated with negative interparental conflict behaviors for mothers but not for fathers (Martin et al., 2019).

It is also possible that the way in which economic insecurity is associated with fathers' destructive conflict may be facilitated by psychological processes other than depression, such as anger or substance use (Nadeau et al., 2016). The current study's measure of parental psychological distress, namely the CES-D does not assess such psychological functioning. Prior research has shown that some of the CES-D items (e.g., "I felt like everything I did was an effort") do not adequately capture depressive symptoms experienced by men, especially Black

men (Torres, 2012) who represent close to half the sample in the current study. Researchers have noted that while depression may predominantly manifest as sadness and hopelessness in women, it may show up as other psychological and behavior effects such as anger, irritability, or substance use in men and thus contributing to conflict management behaviors with their female partners (Nadeau et al., 2016). Additional research in this area is needed to better understand why an indirect effect via depressive symptoms is present for mothers but not for fathers.

Direct Effects of Material Hardship: What it Means for Fathers to "Step Up"?

For fathers, material hardship only had a direct effect on their destructive interparental conflict behaviors. Fathers with low income subscribe to norms, roles, and responsibilities of serving as primary breadwinners and providers for their children just as fathers with middle income do, indicating that being a financial provider to the family is a key component of the fathering identity for many men (Christiansen & Palkovitz, 2001). Researchers conducting qualitative research with fathers have especially argued that not being able to "step up" to the plate and fulfil this important role of obtaining economic resources can negatively affect the degree of conflict in fathers' relationships with the mothers (Edin & Nelson, 2013). Although a convincing point, there has been a lack of quantitative research to test this argument, and the current study showed that while there was a direct effect of material hardship on couples' conflict for fathers, the same direct effect was found for mothers. Because a Bayesian approach allows for directly testing the plausibility of both the null hypothesis and an alternative hypothesis, one can accept the null over the alternative hypothesis, a major advantage over NHST that focuses on rejecting or failing to reject the null (Kruschke & Liddell, 2018).

Hypothesis testing comparing mothers' and fathers' direct effects of material hardship on couples' conflict indicated the acceptance of the null hypothesis that the direct effect is equal in

magnitude for mothers and fathers. This suggests that the difficulties associated with meeting families' everyday basic needs impact mothers and fathers similarly as they relate to couples' negative conflict behaviors. In other words, as noted by qualitative researchers (Edin & Nelson, 2013), fathers with low income certainly experience the impulse to "step up" to the economic plate, but importantly, mothers seem to do so as well in the current study. Without taking a Bayesian approach, drawing this conclusion would not be feasible. The current study's result is consistent with William and Cheadle (2016), who used data from the FFCWS to investigate links between economic hardship and relationship distress in couples and found that increased levels of economic hardship (e.g., had trouble paying rent or mortgage, gas and electric bills, someone needed a doctor but could not go) were linked with higher levels of relationship distress as reported by both the mothers and fathers in couples five years after the child's birth.

Limitations and Future Research

Although material hardship is understood to be a complementary poverty measure to family income, there is limited consensus as to how material hardship should be defined and BSF data was missing food insecurity, an important index that captures families' food needs. Additional research with an improved or empirically validated material hardship measure are needed to better understand material hardship's impact on family processes. The empirical evidence used to create pooled priors is limited in that the literature review focused on selected FSM articles (i.e., more recent and with similar samples). Although the FSM has been tested and replicated over 20 years, a meta-analysis has yet to be conducted. A meta-analysis produces effect sizes that could be built into Bayesian models. Future research would benefit from a meta-analysis that combines data from multiple FSM studies, especially those that focused on families from socioeconomically disadvantaged backgrounds. Results cannot be generalized to a larger

group of low-income, unmarried couple families because BSF families volunteered to participate in a relationship skills education intervention. Such families were likely to have been motivated and interested in strengthening their couple relationships to create a more stable home environment for their children. Use of population-level, nationally representative data is needed to advance future research testing the FSM. Research examining the FSM with diverse fathers or fathers' residential status as a moderator are needed. Because the analytic strategies involved regression-based models and not structural equation models (SEM), which would have allowed for testing joint models in which mother and father variables are entered together, the study was limited to testing individual models for mothers and fathers. Although parsimony was preferred, future research may benefit from using Bayesian SEM to test the simultaneous effects of mothers and fathers as proposed by the FSM. Notwithstanding such limitations, the current study contributes to the empirical base by using a large, diverse, and urban sample of unmarried couple families; including data from fathers' and testing FSM assumptions related to poverty's effects on family process outcomes; and employing Bayesian statistics to build in prior FSM evidence to inform its models.

Implications for Programs and Policies Serving Unmarried Families

In general, material hardship was directly associated with couple's destructive conflict behaviors for both mothers and fathers, whereas family income showed no direct links with mothers' or fathers' mental health. This is consistent with prior arguments and evidence that family income alone does not adequately capture families' economic insecurity and that material hardship serves as an important consumption-based poverty index tapping into everyday struggles with paying for utility bills, health insurance, and housing among other expenses (Gershoff et al., 2007; Ouellette et al., 2004; Zilanawala & Pilkauskas, 2012). It also suggests

that the relation between material hardship and couples' conflict operates differently from the relation between family income and couples' conflict.

Additional efforts focusing on helping families meet their everyday material needs should be more directly integrated into existing relationship skills education programs, such as those supported by the Healthy Marriage and Responsible Fatherhood (HMRF) initiative. Although worthwhile endeavors, HMRF programs that place strong emphasis on improving low-income parents', especially fathers', employability and thus household income, may not be sufficient to help reduce the psychological distress and relationship conflicts associated with economic instability. Results from the Parents and Children Together (PACT)—a recent HMRF evaluation study involving large-scale and random assignment examination of two relationship education programs and four responsible fatherhood programs funded by the Office of Family Assistance, U.S. Department of Health and Human Services—showed that programs had limited success in improving the economic conditions of low-income families with no program effects on fathers' earnings and their perceptions of economic improvement (Avellar et al., 2019). These programs focused on providing group workshops on finding and retaining employment and individualized support such as helping individual fathers identify job skills, interests, develop resumes, and apply for jobs (Avellar et al., 2019).

The cultural narrative related to the need for fathers to "step up" economically and be responsible for their children was present although mothers experienced similar economic pressures, which ultimately had adverse effects on couples' relationship quality for both mother and fathers. There is a need for existing services to address families' material hardships. HMRF service providers are uniquely positioned to comprehensively assess the materials needs of families with low income and help secure necessary goods and resources, including utility

assistance, food stamps, affordable housing, and Medicaid. By collaborating with social workers and community-based organizations, HMRF programs can engage in more coordinated care so that families receive wraparound services to meet their basic needs *and* receive the potential benefits of participating in relationship education and responsible fatherhood programs.

Mothers' depressive symptoms served as important mediators in the current study, which suggests the importance of targeting maternal mental health when administering programs to families to improve their economic conditions and thus strengthen relationships. In particular, HMRF programs will do well to focus on intentionally reducing maternal depressive symptoms instead of merely assessing relationship skills, parenting education, or employment training effects on parents' mental health. For example, although healthy marriage programs in PACT measured program effects on parents' depressive symptoms, services provided primarily focused on improving couple relationship (e.g., understanding partner's perspectives, developing strategies to avoid fighting, and communicating effectively) with limited attention to addressing mental health, including self-care, stress, and coping (Avellar et al., 2019). Future HMRF programs should consider decreasing mothers' depressive symptoms an important part of service delivery to reduce the negative impacts of economic instability on couples' relationship quality.

Table 2.1. *Sample Characteristics*

Variable	*M* (*SD)* or %
Mother's age (range: 18-41 years)	23.59 (4.83)
Father's age (range: 18-52 years)	26.00 (6.14)
Couple's ethnicity and race:	
Black	43.52%
White	17.28%
Latinx	28.88%
Other	10.31%
Couple's education:	
Neither parent has high school diploma	18.18%
One parent has high school diploma	33.97%
Both parents have high school diploma	47.85%
Couple married (Yes)	8.95%
Mother's employment status (Yes)	24.80%
Father's employment status (Yes)	78.10%
Number of biological children with BSF father	1.43 (0.77)
Mother's multiple-partner fertility (Yes)	32.18%
Father's multiple-partner fertility (Yes)	30.31%
Mother's report of welfare receipt	1.88 (1.17)
Assignment in the BSF program (Intervention)	50.54%
Mother's report of father's financial support to raise child[a]	3.93 (1.29)
Monthly family income[a]	$2,363.35 ($4,614.25)
Material hardship[a] (range: 0-4)	1.38 (0.62)
Maternal depressive symptoms[a] (range: 1-4)	1.39 (0.49)
Paternal depressive symptoms[a] (range: 1-4)	1.29 (0.39)
Destructive interparental conflict[b] (range: 1-4)	2.12 (0.73)

Note. N = 2,794. Otherwise stated, all variables are from baseline when couples enrolled in the BSF program. BSF = Building Strong Families. [a]Variable is from the 15-month follow-up period. [b]Variable is from the 36-month follow-up period.

Table 2.2. *Bayesian Mediation Results for Family Income Predicting Parental Depressive Symptoms*

	Maternal Model			Paternal Model		
	M	*SE*	95% CI	*M*	*SE*	95% CI
Parental depressive symptoms						
Family income	0.03	0.02	[0.00, 0.07]	0.00	0.02	[-0.04, 0.04]
Material hardship	**0.11**	**0.02**	**[0.08, 0.15]**	**0.05**	**0.02**	**[0.01, 0.08]**
Father's age	0.00	0.02	[-0.05, 0.05]	-0.01	0.02	[-0.06, 0.04]
Mother's age	-0.02	0.02	[-0.07, 0.03]	-0.02	0.02	[-0.07, 0.02]
Couple's education level	-0.02	0.02	[-0.06, 0.02]	0.01	0.02	[-0.02, 0.05]
Couple's race and ethnicity (reference: Latinx)						
Black	**0.11**	**0.03**	**[0.06, 0.17]**	**0.29**	**0.03**	**[0.23, 0.34]**
White	**0.05**	**0.02**	**[0.01, 0.10]**	**0.12**	**0.02**	**[0.08, 0.17]**
Other	0.02	0.02	[-0.02, 0.06]	**0.15**	**0.02**	**[0.11, 0.19]**
Couple's marital status	0.01	0.02	[-0.02, 0.05]	0.00	0.02	[-0.04, 0.04]
Number of biological children with BSF father	-0.01	0.02	[-0.05, 0.03]	**0.05**	**0.02**	**[0.01, 0.08]**
Father's work status	-0.04	0.02	[-0.08, 0.00]	-0.02	0.02	[-0.06, 0.02]
Mother's work status	-0.04	0.02	[-0.07, 0.00]	-0.03	0.02	[-0.07, 0.01]
Father's multiple-partner fertility	0.01	0.02	[-0.03, 0.05]	0.03	0.02	[-0.01, 0.07]
Mother's multiple-partner fertility	0.03	0.02	[-0.02, 0.07]	0.01	0.02	[-0.03, 0.05]
Receipt of public welfare	**0.09**	**0.02**	**[0.05, 0.12]**	0.01	0.02	[-0.02, 0.05]
Father's financial support for child	**-0.06**	**0.02**	**[-0.10, -0.02]**	**-0.12**	**0.02**	**[-0.16, -0.08]**
Assignment in the BSF program	**-0.05**	**0.02**	**[-0.09, -0.01]**	-0.02	0.02	[-0.05, 0.02]
Location of the BSF program site	0.03	0.02	[-0.01, 0.07]	**0.06**	**0.02**	**[0.02, 0.10]**
Intercept	0.00	0.02	[-0.04, 0.04]	0.00	0.02	[-0.04, 0.04]
Indirect effect	0.00		[-0.01, 0.00]	0.00		[0.00, 0.00]
Direct effect	0.03		[0.00, 0.06]	0.00		[-0.03, 0.03]
Total effect	0.03		[0.00, 0.06]	0.00		[-0.03, 0.03]
R^2 for material hardship	2.26%		[1.34, 3.34]	2.23%		[1.31, 3.27]
R^2 for parental depressive symptoms	5.82%		[4.34, 7.46]	9.50%		[7.56, 11.50]

Note. N = 2,794. CI = Credible Interval. BSF = Building Strong Families. Bolded indicates values with credible intervals that include 0.

Table 2.3. *Bayesian Mediation Results for Material Hardship Predicting Destructive Interparental Conflict*

	Maternal Model			Paternal Model		
	M	*SE*	95% CI	*M*	*SE*	95% CI
Destructive Interparental Conflict						
Material hardship	**0.04**	**0.02**	**[0.01, 0.08]**	**0.05**	**0.02**	**[0.02, 0.09]**
Parental depressive symptoms	**0.12**	**0.02**	**[0.08, 0.16]**	**0.06**	**0.02**	**[0.02, 0.09]**
Father's age	-0.03	0.03	[-0.08, -0.02]	-0.03	0.03	[-0.08, 0.02]
Mother's age	0.04	0.03	[-0.01, 0.09]	0.04	0.03	[-0.02, 0.09]
Couple's education level	0.03	0.02	[-0.01, 0.07]	0.02	0.02	[-0.02, 0.07]
Couple's race and ethnicity (reference: Latinx)						
Black	0.01	0.03	[-0.04, 0.07]	0.01	0.03	[-0.05, 0.07]
White	0.04	0.02	[0.00, 0.09]	0.04	0.02	[0.00, 0.09]
Other	0.01	0.02	[-0.03, 0.06]	0.01	0.02	[-0.03, 0.05]
Couple's marital status	-0.02	0.02	[-0.06, 0.02]	-0.02	0.02	[-0.05, 0.02]
Number of biological children with BSF father	-0.02	0.02	[-0.06, 0.02]	-0.02	0.02	[-0.06, 0.02]
Father's work status	-0.02	0.02	[-0.06, 0.02]	-0.02	0.02	[-0.06, 0.01]
Mother's work status	0.02	0.02	[-0.02, 0.06]	0.02	0.02	[-0.02, 0.06]
Father's multiple-partner fertility	0.02	0.02	[-0.02, 0.06]	0.02	0.02	[-0.02, 0.06]
Mother's multiple-partner fertility	-0.01	0.02	[-0.05, 0.03]	-0.01	0.02	[-0.05, 0.03]
Receipt of public welfare	**0.06**	**0.02**	**[0.02, 0.10]**	**0.07**	**0.02**	**[0.03, 0.11]**
Father's financial support for child	0.00	0.02	[-0.04, 0.04]	0.00	0.02	[-0.04, 0.04]
Assignment in the BSF program	**0.05**	**0.02**	**[0.01, 0.08]**	0.04	0.02	[0.00, 0.08]
Location of the BSF program site	-0.01	0.02	[-0.05, 0.04]	0.00	0.02	[-0.05, 0.04]
Intercept	0.00	0.02	[-0.04, 0.04]	0.00	0.02	[-0.04, 0.04]
Indirect effect	**0.01**		**[0.01, 0.02]**	0.00		[0.00, 0.00]
Direct effect	**0.04**		**[0.01, 0.07]**	**0.05**		**[0.02, 0.08]**
Total effect	**0.06**		**[0.03, 0.09]**	**0.06**		**[0.02, 0.08]**
R^2 for parental depressive symptoms	5.68%		[4.15, 7.35]	9.44%		[7.56, 11.43]
R^2 for destructive interparental conflict	3.63%		[2.43, 5.02]	2.53%		[1.56, 3.67]

Note. N = 2,794. CI = Credible Interval. BSF = Building Strong Families. Bolded indicates values with credible intervals that include 0.

Table 2.4. *Summary of Income and Material Hardship Effects on Parental Depression and Interparental Conflict*

Outcome Measure	Direct Effect Income → Outcome	Direct Effect Income→ Material Hardship	Direct Effect H3: Material Hardship → Outcome	Indirect Effect H1: Material Hardship as a Mediator	Indirect Effect H2: Parental Depression as a Mediator
Parental Depressive Symptoms	---	---	M, F	---	---
Destructive Interparental Conflict	---	---	M, F	---	M

Note. M denotes that the relationship was present for mothers. F denotes that the relationship was present for fathers

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Chapter 4 (Dissertation Study #3): Material Hardship in Families with Low Income: Effects of Coparenting on Fathers' and Mothers' Parenting and Children's Prosocial Behaviors

Material hardship is prevalent among American families with low income, with 70% of families reporting some level of material hardship, defined as challenges with paying for housing, utilities, food, or medical care (Karpman et al., 2018). Material hardship is associated with negative family processes and child outcomes, including increases in parental depressive symptoms, (Wickrama, Surjadi, Lorenz, Conger, & Walker, 2012) and decrease in relationship quality (Lucas, Hardie, & Yim, 2020), sensitive parenting (Newland, Crnic, Cox, & Mills-Koonce, 2013), and children's cognitive skills and socioemotional competence (Gershoff, Aber, Raver, & Lennon, 2007). Although empirical evidence on the effects of material hardships on family functioning is more limited than that covering income poverty (i.e., an annual income below $26,500 for a family of four in 2021) (U.S. Department of Health Human Services, 2021), material hardship has been shown to be linked with increased partner relationship conflict, harsh parenting, and children's behavior problems (Gard et al., 2020; Neppl et al., 2016; White et al., 2015).

The Family Stress Model (FSM: Conger, Ge, Elder, Lorenz, & Simons, 1994) has been used frequently to examine the processes linking the effects of material hardship on children's outcomes using racially diverse samples of mother-father families from low-income backgrounds (Conger, Wallace, Sun, Simons, McLoyd, & Brody, 2002; Curran, Barnett, Kopystynska, Chandler, and LeBaron, 2021; Gard et al., 2020; Gershoff et al., 2007; Masarik & Conger, 2017; Parke, Coltrane, Duffy, Buriel, Dennis, Powers, French, & Widaman, 2004). For example, Conger et al. (2002) used a rural and suburban sample of Black families from Iowa and Gorgia recruited for the Family and Community Health Study. Gard et al. (2020) used a racially diverse sample of White, Black, and Latinx families from the Fragile Families Child Wellbeing Study. Parke et al. (2004) used a sample of White and Mexican American families from California

recruited for the Riverside Economic Stress Project. Although these studies included diverse samples of both mothers and fathers, they primarily focused on the effects of material hardship in creating negative family dynamics by increasing interparental conflict and harsh parenting practices and did not consider positive family dynamics and a strengths-based approach that emphasizes the resilience in the family system and how parents strive to manage family life, even under the conditions of material hardship.

That said, some researchers have examined the links between material hardship and positive family outcome, such as positive parenting behaviors and coparenting alliance (Gershoff et al., 2007; LeBaron, Curran, Li, Dew, Sharp, & Barnett, 2020). Specifically, Gershoff et al. (2007) found that material hardship was positively linked with a positive parenting latent variable that was characterized by warmth, cognitive stimulation, physical punishment, and rules and routines. LeBaron et al. (2020) showed that material hardship was negatively linked with fathers', but not mothers', perceived coparenting alliance characterized by coparental communication, support, and teamwork. Overall, there is a need to examine family processes that allow parents to support their children's growth and development even in the face of material hardship to gain further insights in how to assist these parents in ways that will ultimately benefit children. The current study uses data from the Building Strong Families (BSF), a racially diverse sample of unmarried parents with young children, to examine the roles of coparenting alliance and positive parenting in children's prosocial development in the context of material hardship.

Theoretical Framework: The Family Stress Model

The current study was guided by the FSM (Conger et al., 1994), which was discussed in detail in the introduction section of dissertation study 2. Figure 3.1 outlines the model to be

tested here by building directly on the findings of dissertation study 2, in which material hardship, but not income poverty, was linked to destructive interparental conflict by focusing on the more positive, strengths-based family processes, such as the coparenting alliance and mothers' and fathers' positive parenting behaviors (Gershoff et al., 2007; LeBaron et al., 2020). This strengths-based approach is especially important because deficit approaches are often used when studying families from socioeconomically disadvantaged backgrounds, even if facing adverse economic circumstances. There is a need to think critically about the structural challenges such families face (e.g., unequal access to education, high-quality jobs, healthcare, childcare; limited safety net programs based on the 'deservingness' of individuals; systemic racism against families of color) and the psychological resources and social supports parents rely on to perform their family responsibilities and caregiving duties (Abdill, 2018; Edin & Nelson, 2013; Hahn & Simms, 2021; Lemmons & Johnson, 2019).

As such, the current study focuses on the strengths of unmarried mother-father families, many of whom are families of color and from socioeconomically disadvantaged backgrounds, given the resilience shown in many families coping with material hardship (Furstenberg, 2005; Jarrett, 1997; Quint, Griffin, Kaufman, Landers, & Utterback, 2018). For example, a review of qualitative studies published between 1990 and 2018 found that parents with low income often tried to protect their children, especially younger children, from the realities of economic challenges lest their children worry or feel ashamed (Quint et al., 2018). Another review of qualitive studies found that Black families in impoverished neighborhoods used several alternative and creative strategies to protect and nurture their children (Jarrett, 1997). Some of these strategies included seeking out resources on behalf of their children, preventing negative peer or adult influences by managing children's activities, and spending time with their children

(e.g., supervising, chaperoning) (Jarrett, 1997; Furstenberg, 2005). That is, families from socioeconomically disadvantaged backgrounds may cope with material hardship in such ways that prevents its negative effects on their children, and this might well operate through certain parenting behaviors that have a protective function. Together, these suggests the use of a risk and resilience approach in studying such families by examining positive family processes, such as positive coparenting and parenting behaviors that potentially buffer the adverse effects of material hardship on parents and children.

Material Hardship and Positive Fathering Behaviors

As noted above, material hardship has been tested and shown to be linked with negative family processes, such as increased conflict between parents and harsh parenting (Gard et al., 2020; Neppl et al., 2016; White et al., 2015). By virtue of focusing on the negative effects of material hardship on family functioning, FSM is deficit-oriented and thus fails to recognize the strengths with which families with low economic resources navigate the challenges of material hardship. Related to this point, a body of qualitative literature with majority Black fathers in low-income urban settings has shown that such fathers are likely to emphasize the importance of engaging with their children precisely because of the economic challenges they face (Edin & Nelson, 2013; Mattis, McWayne, Palmer, Johnson, & Sparks, 2020; Threlfall, Seay, & Kohl, 2013).

In Threlfall et al.'s (2013) qualitative study, Black fathers with low income reported that while being a provider was important, being a father was not limited to their financial contributions. In the face of economic challenges, such fathers emphasized the intrinsic value of developing relationships with their children. More recently, interviewing 20 Black fathers with low income in New York City, Mattis et al. (2020) found that fathers experiencing constraints on

their abilities to economically provide focused on engaging in various positive parenting practices (e.g., teaching specific skills to and instilling competencies in their children). Similar results have been found in a qualitative study with a racially diverse group of community-based fathers in Flint, Michigan (Lee, Lee, Lin, Chang, Albuja, & Volling, in preparation). Fathers in this study emphasized their responsibilities to be present, teach, and spend quality time with their children while navigating a multitude of structural barriers, including unemployment and underemployment (Lee et al., in preparation).

In addition to qualitative research, quantitative research has provided support for the important role fathers with low socioeconomic resources play in their families' dynamics and children's lives (Downer & Mendez, 2005; Johnson, 2001; Perry, Harmon & Leeper, 2012). Using a sample of Black fathers with preschool children enrolled in Head Start, Downer and Mendez (2005) showed that Black fathers were involved in caregiving and home-based educational activities, especially if they were residential with their preschoolers. More broadly, using data from the Fragile Families Wellbeing Study, research has shown the high levels of involvement of unmarried fathers with their children—especially in the early years of their children's lives—despite economic challenging circumstances (Johnson, 2001).

Abdill (2018) used both qualitative and quantitative data with Black fathers residing in low-income neighborhoods in Brooklyn, New York, to draw the conclusion that men who were unable to provide financially for their children and families behaved in ways that still allowed them to feel empowered as fathers. Of the identified behaviors, one of them included keeping their children at the center and showing affection and love to them (Abdill, 2018). Together, it appears that when financial resources are scarce, Black fathers in low resourced contexts emphasize being there to socialize their children and engage in close and warm relationships.

That is, such fathers may be compensating for their limited economic contributions by being more involved with their children. Importantly, this seems to take the form of spending quality time with and meeting the socioemotional needs of their children.

Coparenting Alliance and Positive Mothering and Fathering Behaviors

Coparenting is defined as the ways in which parents or parental figures relate to each other in their roles as parents (Feinberg, 2003). Coparenting often happens when individuals have shared responsibilities for rearing their children together. A key dimension of coparenting is coparenting alliance, which is characterized by both parents' investment in the child, evaluation of reciprocal involvement with the child, respect for each other's judgement about child rearing, and desire to communicate child-related information (Weissman & Cohen, 1985). Positive coparenting, including coparenting alliance, has been linked with positive parenting behaviors for both mothers and fathers from socioeconomically disadvantaged backgrounds (Fagan & Cherson, 2017; Fagan & Palkovitz, 2011; Lee, Volling, Lee, & Altschul, 2020).

Fagan and Cherson (2017), for example, used data from the Fragile Families and Child Wellbeing study and found that coparenting in the form of maternal encouragement when children were 3 years old was positively linked with higher levels of father involvement in childcare, play, and language activities when the child was 5 years old. Similarly, using a racially diverse sample of unmarried mother-father families from the BSF, Lee et al., (2020) found that coparenting alliance when children were approximately 15 months old was linked with increased levels of fathers' engagement in caregiving when children were approximately 36 months old.

Research has shown similar findings for mothers (Barnett, Scaramella, McGoron, & Callahan, 2011; Jones, Forehand, Dorsey, Foster, & Brody, 2005; Shook, Jones, Forehand, Dorsey, & Brody, 2010). As a case in point, Barnett et al. (2011) used a community sample of

117 predominantly Black families from low-income urban settings, and found that coparenting cooperation (i.e., coparents working together to raise children) was associated with mothers' positive parenting of their 3- to 4-year-olds. Collectively, these studies suggest that positive coparenting, including coparenting alliance, likely encourages both fathers and mothers from socioeconomically disadvantaged backgrounds to engage in positive parenting behaviors with their children.

Positive Mothering and Fathering Behaviors and Children's Prosocial Behaviors

Research on mothers' and fathers' parenting has shown that positive behaviors—such as being sensitive to the needs of the child and displaying warmth—is linked with children's development of prosocial behaviors starting in early childhood (Biringen & Easterbrooks, 2012; Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013; Davidov & Grusec, 2006; Eisenberg, Fabes, & Spinrad, 2006; Grusec, Davidov, & Lundell, 2002; Hastings, Utendale, & Sullivan, 2007). Prosocial behaviors include children showing concerns for others and willing to help or share with others. Although much of this research has been conducted with middle-class families, several studies have tested similar relations with families with low income. For example, using a community sample of 174 predominantly Black families from a low-income urban setting, Barnett, Gustafsson, Deng, and Mills-Koonce (2012) found support for a positive concurrent relationship between maternal sensitivity and young children's prosocial behaviors when the children were 24 to 36 months old.

Studies including fathers, especially those from socioeconomically disadvantaged backgrounds, to test fathers' contributions to young children's prosocial behaviors are limited. Of the few available studies, Newton, Laible, Carlos, Steele, and McGinley (2014) used data from the NICHD Study of Early Child Care (NICHD Early Child Care Research Network, 2005)

to examined links between maternal (n = 1,155 mothers) and paternal (n = 459 fathers) parenting behaviors and children's prosocial behaviors (e.g., show concern for other's distress) during middle childhood. When the children were 54 months old, maternal and paternal sensitivity were assessed using structured observational tasks. The NICHD ECCRN (2005) rating scale was applied to two dimensions of positive parenting (i.e., respect for the child's autonomy and supportive parental presence). The researchers found that both maternal and paternal sensitivity when children were 54 months old were positively linked with children's prosocial behaviors when they were 9 years old. Although an important set of findings, Newton et al., (2014) tested separate models for mothers and fathers, limiting our understanding of how couples manage their coparental roles and parenting responsibilities jointly or as a dyadic unit in the family.

Dissertation Study 3

In response to some of the limitations of prior research, this dissertation study aimed to utilize a risk and resilience approach to investigate the underlying family processes linking material hardship and children's prosocial behaviors in a sample of unmarried mother-father families with young children. Couples' coparenting, in the form of alliance between parents, and mothers' and fathers' positive parenting were the family processes examined as mediators. There were four hypotheses based on FSM and prior research (see Figure 3.1). First, it was hypothesized that material hardship would be associated with decreased levels of coparenting relationship quality (H1) (Conger et al., 1994; Gard et al., 2020; Neppl et al., 2016). Second, it was hypothesized that material hardship would be linked with decreased levels of mothers' and fathers' positive parenting in the form of responsiveness (H2). Third, coparenting relationship quality was hypothesized to be linked with increased levels of mothers' and fathers' positive parenting (H3) (Lee et al., 2020). Fourth, mothers' and fathers' positive parenting were then

hypothesized to be associated with increased levels of children's prosocial behaviors (H4) (Barnett et al., 2012; Newton et al., 2014). This study makes an important contribution to the literature by taking a risk and resilience approach to applying the FSM to a large, racially diverse sample of unmarried mothers and fathers with young children to examine the role of coparenting alliance and positive parenting in children's prosocial development in the context of material hardship.

Method

The study again used data from the BSF project. Descriptions of BSF intervention and research designs remain the same. Thus, dissertation study 1's method section is to be referenced for additional details on BSF intervention and research design methods.

Participants

The analytic sample consisted of BSF families in which the father was residential with mother and child across all three data collection periods. This decision was based on prior research showing that residential father and nonresidential father families differ in their family processes, given that nonresidential fathers are less likely to have contact with their children compared to residential fathers (Lee et al., 2020). Fathers' residential status was defined as living with the mother and child *all* or *most* of the time at each time point as informed by residential status determination recommendations for prior literature (Fagan, Levine, Kaufman, & Hammar, 2016; Waller & Emory, 2014).

To create the analytic sample, 18 families with a deceased BSF partner were first excluded. Next, fathers' reports of their residential status with the mother and child were used to determine which families would be further excluded. A total of 3,585 families reported that fathers were nonresidential with the mother and child at baseline, the 15-month follow-up period,

and/or the 36-month follow-up period. These families were excluded, reducing the sample to 1,499 families. Another 124 families specifically from the Baltimore BSF site were dropped because only mothers completed the parent-child observation tasks, which were the means of assessing positive parenting in the current analyses. The final analytic sample was $N = 1,375$ families.

Measures

Material hardship. Material hardship was measured at the 15-month follow-up survey and was based primarily on mothers' reports of economic hardship using a dichotomous 0 = *No* or 1 = *Yes* response format on four items, including: (1) *ability to pay rent* - families' hardship paying rent or mortgage in the past year (i.e., "You could not pay the full amount of the rent or mortgage?"); (2) *consistency of utilities* – the hardship families' experienced related to utilities in the past year (i.e., "You had services turned off by the water, gas, or electric company or the oil company would not deliver oil in the past 12 months because you could not afford to pay the bill?") (3) *residential stability* – the hardship families experienced related to housing in the past year (i.e., "You were evicted from your home or apartment because you could not pay the rent or mortgage"?); and (4) *medical care* - the hardship families experienced related to medical insurance (e.g., "Are you currently covered by Medicaid, [STATE/LOCAL FILL], or any other government program that pays for medical care?") . The medical care indicator was reverse-coded with 1 indicating the presence of medical hardship with respect to insurance coverage. A total score was creating by summing across all four items to create a composite of material hardship, ranging from 0 to 4.

Coparenting alliance. Coparenting alliance between mothers and fathers was assessed at the 15-month follow-up survey served as one of the independent variables. Mothers' and fathers'

reports of positive coparenting were measured using 10 items from the Parenting Alliance Index (PAI; Abidin & Brunner, 1995). The items represented a parent's positive assessment—coparenting alliance and communication—of another parent as a coparent (e.g., "I believe my child's other parent is a good parent," "My child's other parent and I communicate well about our child," "I feel good about my child's other parent's judgement about what is right for our child," "My child's other parent makes my job of being a parent easier," "My child's other parent and I are a good team"). Fathers and mothers rated these items on a 5-point scale ranging from 1 = *strongly agree* to 5 = *strongly disagree*. The scale was reverse-coded so that higher scores reflects higher levels of coparenting alliance. All 10 items served as individual indicators for fathers' and mothers' individual coparenting latent variables.

Parenting behaviors. Mothers' and fathers' parenting behaviors observed at the 36-month direct assessment served as the mediating variables. Parenting behaviors were observed and videotaped separately during the two-bags task, a10-minute semi-structured, free-play interaction task between the parent and child (Administration for Children and Families, 2002). The two-bags task is a modified version of the three-bags Task (NICHD Early Child Care Research Network, 1999). Specifically, the task involved the interviewer placing a mat and two pink bags on the floor and asking the parent and child to spend time playing with objects in the two bags. The parent was instructed first to open the first bag, which included a book inside, and then move on to the second bag, which included pretend play toys inside. The parent was further informed that he or she could divide 10 minutes between the two bags as he or she wished. Eighteen trained coders rated six parenting behaviors from the parent-child interaction videos in a centralized location using the same rating system as the NICHD Study of Early Child Care Research Network (NICHD ECCRN, 1999).

This rating system employs a 7-point rating scale ranging from 1 = *not at all characteristic* to 7 = *very characteristics* to code (a) *sensitivity*, which is the ability to perceive and accurately interpret the child's behavior and respond appropriately; (b) *intrusiveness*, which pertains to interventions or overstimulation that impinges on the child's independence; (c) *detachment*, which represents lack of involvement and disengagement with the child; (d) *positive regard*, which corresponds with demonstrating positive feelings toward the child; (e) *negative regard*, which corresponds to demonstrating negative feelings (e.g., criticism, harsh tone) toward the child; and (f) *stimulation of cognitive development*, which involves scaffolding the child's cognitive developing during the task. All six parenting variables were used in the development of latent variables representing mothers' and fathers' positive parenting.

Children's Prosocial Behaviors. Children's prosocial behavior was assessed at the 36-month follow-up, using nine items from the Social Interaction Scale of the Preschool and Kindergarten Behavior Scales—Second Edition (PKBS-2; Merrell, 2002). The items represent young children's positive, prosocial behaviors (e.g., "Comforted other children who were upset") in the last three months (Moore, Sun, Wood, Clarkwest, Killewald, & Monahan, 2013). Items from the PKBS-2 Social Interaction Scale have been adapted for use in large-surveys, such as the Early Childhood Longitudinal Survey-Birth Cohort and University Preschool Child Outcome Study (Moore et al., 2013). Mothers rated the nine items on a 4-point scale, ranging from 1 = *often* to 3 = *never*. Items were reverse-and averaged so that higher scores represent more prosocial behaviors (α = 0.79)

Sociodemographic Control Variables. A robust set of sociodemographic variables primarily from baseline were used as control variables in all the analytic models. These control variables were selected by examining related literature (Lee et al., 2020) and conducting

correlations with the main study variables. Significant correlations were present between main study variables and the following 11 control variables: couples' race and ethnicity, education level, relationship length, mothers' employment status, fathers' employment status, mothers' depressive symptoms, fathers' depressive symptoms, mothers' multiple partner fertility, fathers' multiple partner fertility, BSF random assignment status, and BSF program site location. All 11 control variables were from baseline, except for mothers' and fathers' depressive symptoms, which were from the 15-month follow-up period.

Specifically, couples' race and ethnicity ($r = 0.06$, $p = 0.02$), mothers' multiple partner fertility ($r = 0.06$, $p = 0.02$), fathers' depressive symptoms ($r = 0.08$, $p = 0.002$), mothers' depressive symptoms ($r = 0.13$, $p < 0.001$), and BSF random assignment status ($r = -0.06$, $p = 0.03$) were significantly correlated with family material hardship. Couples' race and ethnicity ($r = 0.10$, $p < 0.001$), education level ($r = 0.06$, $p = 0.02$), fathers' depressive symptoms ($r = -0.15$, $p < 0.001$), mothers' depressive symptoms ($r = -0.22$, $p < 0.001$), and BSF random assignment status ($r = 0.05$, $p = 0.03$) were significantly correlated with couples' coparenting relationship quality. Couples' education level ($r = 0.13$, $p < 0.001$), fathers' employment status ($r = 0.15$, $p < 0.001$), mothers' employment status ($r = 0.09$, $p = 0.02$), fathers' multiple partner fertility ($r = -0.10$, $p = 0.001$), fathers' depressive symptoms ($r = -0.07$, $p = 0.047$), and BSF program site location ($r = 0.09$, $p = 0.01$) were significantly correlated with mothers' positive parenting. Couples' education level ($r = 0.14$, $p < 0.001$), fathers' employment status ($r = 0.08$, $p < 0.03$), and fathers' multiple partner fertility ($r = -0.08$, $p = 0.03$) were significantly correlated with fathers' positive parenting. Finally, couples' race and ethnicity ($r = 0.29$, $p < 0.001$), education level ($r = 0.14$, $p < 0.001$), relationship length ($r = -0.09$, $p = 0.002$), mothers'

employment status ($r = 0.13$, $p < 0.001$), and BSF program site location ($r = -0.07$, $p = 0.02$) were significantly correlated with children's prosocial behaviors.

Model Development and Data Analysis Plan

Preliminary analyses and data reduction. Preliminary analyses involved exploratory factor analysis (EFA) to examine the number of factors underlying indices of mothers' and fathers' observed parenting behaviors. Eigenvalues, scree plots, and prior research were used to help determine the number of factors. According to Kaiser's criterion, factors with eigenvalues equal or higher than 1 can be retained (Kaiser, 1960). Scree plots should be examined for a natural break between steep parts (with large eigenvalues) and leveled parts (with small eigenvalues) of the graph. The point at which the graph begins to level off corresponds to the recommended number of factors to retain (Yong & Pearce, 2013). Separate unrotated principal factor EFAs were conducted for mothers and fathers, using each parent's six parenting behaviors (e.g., sensitivity, positive regard, negative regard, cognitive stimulation, intrusiveness, and detachment) as individual items. For both parents, EFA results suggested a single factor model with the eigenvalues of the first factors being 2.53 for mothers 2.41 for fathers. All subsequent factors had eigenvalues less than 1. These first factors for mothers and fathers accounted for 87.15% and 89.35% of the total variance of the parenting items, respectively. Additionally, scree plots were used to further determine the number of factors to retain. For both parents, the scree plots suggested a three-factor model, with the plot suggesting a natural break at three factors.

Further examining EFA results by observing the factor loadings, the first factor seemed to represent "positive" parenting for both parents, with sensitivity, positive regard, and cognitive stimulating coalescing together (mother: 0.91 for sensitivity, 0.67 for positive regard, 0.42 for cognitive stimulation; father: 0.90 for sensitivity, 0.67 for positive regard, 0.46 for cognitive

stimulation). The second factor seemed to somewhat represent "negative" parenting for both parents, with intrusiveness, negative regard, and cognitive stimulation coalescing together (mother: 0.51 for intrusiveness, 0.34 for negative regard, 0.42 for cognitive stimulation; father: 0.50 for intrusiveness, 0.28 for negative regard, 0.37 for cognitive stimulation). The third factor seemed to represent "detached" parenting for both parents, with only the detachment variable making up this factor with generally low factor loadings (mother: 0.25; father: 0.22).

Building latent variables. Given the nature of the longitudinal, multiple reporter data available, analyses were designed in steps for purposes of model building. Building the model of interest from the smallest specified pieces ensures that all the pieces in the model are appropriately specified and fit the data well (Kline, 2016). Extending the EFA results for mothers' and fathers' parenting latent variables, two factor models—one latent variable representing positive parenting (sensitivity, positive regard, cognitive stimulation) and another latent variable representing negative parenting (intrusiveness, detachment, negative regard)—were next tested as confirmatory factor analysis (CFA) models for both parents. Prior research (Caughy, Peredo, Owen, & Mills, 2016) and efforts to create the most parsimonious models guided this decision-making process. The positive parenting factor models converged normally for both mothers and fathers. However, the negative parenting factor models did not coverage for either parent, suggesting additional evidence for a single factor model focusing on positive parenting.

Subsequently, a single factor CFA model was tested with all six parenting variables for both parents. Negative parenting behavior items including negative regard, intrusiveness, and detachment were reversed in this single factor CFA model. The model did not converge, and additional analyses suggested inclusion of the intrusiveness variable may be preventing model

convergence. Similar accounts with the intrusiveness variable are documented in research (Caughy et al., 2016). Consistent with Caughy et al., (2016) another single factor CFA model with five parenting variables where intrusiveness was excluded was next tested for both parents. Models for both mothers and fathers converged normally with fit indices indicating decent model fit. Modification indices were further examined and additional covariances (i.e., between positive regard and cognitive stimulation, between sensitivity and negative regard, between negative regard and cognitive stimulations) were added based on modification indices results. The subsequent CFA models representing mothers' and fathers' individual positive parenting latent variables had good fit to the data, which can be found in Table 3.1. Factor loadings ranged from 0.04 to 0.88 for mothers' positive parenting and 0.41 to 0.89 for fathers' positive parenting as detailed in Table 3.2. As a follow-up, a model combining mothers' and fathers' individual positive parenting latent variables was built and tested. A covariance between mothers' and fathers' residual variances was added to account for correlations between parents. Once more, the model converged normally and had good fit (for model details, see Tables 3.1 and 3.2).

Next, a separate CFA was conducted to build a latent variable representing couple-level coparenting relationship quality variable (see also Lee et al., 2020). Because each parent reported on the other parent's coparenting (e.g., "I believe my child's other parent is a good parent") rather than their own coparenting, both mothers' and fathers' reports of the coparenting relationship were used to create a second-order, couple-level latent variable to assess the *dyadic* nature of the coparenting construct. This process involved creating first-order coparenting latent variables for mothers and fathers using individual coparenting items reported by mothers and fathers. That is, two first-order coparenting latent variables were built, one for mothers and another for fathers. Models for both parents converged normally and had good fit to the data,

which can be found in Table 3.1. Factor loadings for individual coparenting items ranged from 0.68 to 0.79 for mothers and 0.66 to 0.80 for fathers, as detailed in Table 3.2. The two first-order coparenting latent variables were then used to create a single second-order coparenting latent variable that represented coparenting relationship quality present at the couple level instead of the individual parent level. The loadings mothers' and fathers' first-order coparenting latent variables were fixed to be equal to each other at 1. The residual variances of these first-order latent variables were also fixed to be equal. These constrained were imposed to reflect mothers' and fathers' equal contributions to the dyadic coparenting latent variable. Once more, the model with the second-order coparenting latent variable converged normally and had good fit to the data (see Tables 3.1 and 3.2).

Finally, a model combining the second-order coparenting latent variable with mothers' and fathers' positive parenting latent variables were built and tested. The same constraints, including covariances, from the previous modeling building steps were applied. This final combined model converged normally and had good fit to the data as shown in Table 3.1.

Building the Structural Equation Model. The study used structural equation modeling (SEM) with latent variables as its main analytic method to test paths specified in the conceptual model (Figure 3.1). Specifically, the associations between family material hardship, coparenting relationship quality, and children's prosocial behaviors mediated by mothers' and fathers' positive parenting were tested. The SEM models included the positive parenting latent variables for mothers and fathers and couple-level coparenting relationship quality latent variables built previously. Material hardship and children's prosocial behaviors were composites that served as observed variables in the model. SEM analyses were conducted using the R package lavaan (Rosseel, 2012) to estimate the models. Model fit was evaluated using several fit indices (see

Kline, 2016), including Root Mean Square Error Approximation (RMSEA; Steiger, 1990; < 0.06 for good fit); 90% confidence intervals (CIs) of RMSEA (< 0.05 for lower bound for good fit; Kenny, 2015); Comparative Fit Index (CFI; Bentler, 1990; > 0.95 for good fit); and Standardized Root Mean Square Residuals (SRMR; Hu & Bentler, 1999; < 0.05 for good fit). The chi-square test of significance was reported but not primarily relied upon to assess model fit because it has been shown to be highly sensitive to sample size (Kline, 2016). Because research suggest that girls engage in more prosocial behaviors than boys, it was speculated that results might be different by child gender (Baillargeon, Morisset, Keenan, Normand, Jeyaganth, Boivin, & Trembly, 2011; Kornbluh & Neal, 2014). Child sex was examined as a moderator. Measurement invariance tests and multigroup analysis were conducted to examine differences in family processes when the focal child was either a boy or girl.

Missing data. Stata Version 15.1 (StataCrop, 2017) was used to engage in missingness pattern analysis. Logistic regressions were used to further examine missingness mechanisms (e.g., MAR). Results from Stata's missingness pattern analysis showed that data were missing in 0% to 49.09% (for fathers' positive parenting) of the cases. Data for material hardship was missing in 0.44% of the cases. Data for fathers' and mothers' reports of coparenting relationship quality were missing in 0% and 2.11% of the cases, respectively. For parents' positive parenting data, 49.09% of the cases were missing for fathers and 46.84% of the cases were missing for mothers, mainly because only a subsample of mother and fathers participated in the parent-child observation tasks during the 36-month follow-up period. Data were missing in 3.27% of the cases in children's prosocial behaviors. Across all control variables, data were missing in less than 2% of the cases with maternal depressive symptom having the largest amount of missing data at 1.75% amongst all control variables.

Results from the logistic regressions showed that missing cases for fathers' positive parenting were missing at random (MAR), where missingness is significantly associated with observed variables in the dataset. Specifically, missingness in fathers' positive parenting was significantly associated with couples' relationship length ($\beta = 1.09$, $p = 0.01$) and the BSF program site location ($\beta = 0.80$, $p = 0.01$). Results from the logistic regressions showed that missing cases for mothers' positive parenting were missing completely at random (MCAR), where missingness was not significantly associated with any of the observed variables in the dataset. That said, the actual missing data mechanisms was more likely to be MAR given the possibility that missing cases in mothers' positive parenting depend on observed variables in the original BSF dataset, not the current subsetted dataset for dissertation study 3. Missing data mechanisms of all other key variables (e.g., fathers' and mothers' reports of coparenting relationship quality, material hardship, children's prosocial behaviors) could not be determined because logistics models did not converge given the small number of cases missing in these variables (i.e., lack of power).

To account for missing data, full information maximum likelihood (FIML) was used in the SEM models. FIML estimates parameters by maximizing the sample and using all available data (Kline, 2016) and has been shown to produce less biased and more efficient estimates than other missing data methods (e.g., listwise deletion) especially when data do not appear to be MCAR (Allison, 2003).

Results

Preliminary Results

Descriptive statistics are presented in Table 3.2. Overall, families reported experiencing at least one type of material hardship ($M = 1.37$, $SD = 0.60$). Both mothers and fathers generally

reported high levels of coparenting alliance (mothers: $M = 4.58$, $SD = 0.50$; fathers: $M = 4.67$, $SD = 0.40$) and moderately high levels of positive parenting (mothers: $M = 4.85$, $SD = 0.77$; fathers: $M = 4.87$, $SD = 0.75$). Mothers' reports of children's prosocial behavior were on average high ($M = 2.34$, $SD = 0.54$) based on the scale that ranged from 0 to 3. Girls exhibited significantly higher prosocial behaviors than boys (girls: $M = 2.39$, $SD = 0.52$; boys: $M = 2.30$, $SD = 0.56$) based on the results of a one-way analysis of variance, $F(1) = 7.29$, $p = 0.01$.

Structural Equation Modeling Results

The main SEM model examined families' material hardship and couple-level coparenting coparenting alliance as predictors of mothers' and fathers' positive parenting and children's prosocial behaviors. As shown in Figure 3.2 structural paths were estimated between (a) material hardship and mothers' positive parenting; (b) material hardship and fathers' positive parenting; (c) coparenting relationship quality and mothers' positive parenting; (d) coparenting relationship quality and fathers' positive parenting; (e) mothers' positive parenting and children's prosocial behaviors; and (f) fathers' positive parenting and children's prosocial behaviors. The SEM model converged normally, and the model had good fit to the data, $\chi^2(829) = 1850.19$, $p < 0.001$, RMSEA = 0.03, 90% CI [0.03, 0.03], CFI = 0.94, SRMR = 0.04.

Figure 3.2 shows that material hardship at 15 months was not significantly linked with coparenting relationship quality at 15 months, $\beta = -0.002$, $p = 0.97$, 95% CI [-0.02, 0.02]. That said, material hardship at 15 months significantly predicted fathers' positive parenting at 15 months in that more material hardship was linked with increased levels of fathers' positive parenting, $\beta = 0.10$, $p = 0.02$, 95% CI [0.03, 0.27]. Material hardship did not significantly predict mothers' positive parenting, $\beta = 0.05$, $p = 0.21$, 95% CI [-0.05, 0.22]. Coparenting relationship quality at 15 months was a significant positive predictor of both fathers' and mothers' positive

parenting at 15 months: fathers' positive parenting, β = 0.37, *p* = 0.02, 95% CI [1.05, 5.03], and mothers' positive parenting, β = 0.37, *p* = 0.01, 95% CI [1.22, 5.16]. Mothers' positive parenting at 36 months positively and significantly predicted children's prosocial behaviors at 36 months, β = 0.15, *p* = 0.004, 95% CI [0.03, 0.14]. Similarly, fathers' positive parenting at 36 months significantly and positively predicted children's prosocial behaviors at 36 months β = 0.16, *p* = 0.002, 95% CI [0.03, 0.15].

Bootstrapping: Testing Indirect Effects via Mothers' and Fathers' Positive Parenting

Bootstrapping was used to estimate the confidence intervals of indirect effects. Specifically, confidence intervals of coparenting alliance's indirect effect on children's prosocial behaviors via mothers' and fathers' positive parenting, as well as the confidence interval of material hardship's indirect effect on children's prosocial behaviors via fathers' positive parenting was calculated. Bootstrapping involves directly testing the indirect effect by estimating the confidence interval of the indirect effect (Dearing & Hamilton, 2006). Observations were drawn randomly with replacement to create additional datasets and then indirect effects and confidence intervals were calculated for each dataset. A total of 1,000 bootstrapped samples were used. The indirect effect is considered statistically significant if the confidence interval does not contain zero (Dearing & Hamilton, 2006). The confidence intervals of coparenting alliance's indirect effects indicated significant indirect effects on children's prosocial behaviors via both parents' positive parenting behaviors: mothers' positive parenting, β = 0.06, 95% CI [0.05, 0.55], and fathers' positive parenting, β = 0.06, 95% CI [0.04, 0.58]. These results confirmed that, while the indirect effects are small, mothers' and fathers' positive parenting both served as key mediators by which coparenting alliance was positively linked with children's prosocial behaviors. The confidence interval of material hardship's indirect effect also indicated

a small but significant indirect effect on children's prosocial behaviors via fathers' positive parenting only, β = 0.02, 95% CI [0.001, 0.03]. This finding confirmed that material hardship operated through fathers' positive parenting to have a small yet positive effect on children's prosocial behaviors.

Moderation Analysis by Child Sex

To determine if relations might differ based on child sex, multigroup analysis was conducted using child sex at the 15-month follow-up as the moderating variable. Earlier research (Baillargeon et al., 2011; Kornbluh & Neal, 2014), as well as findings reported above, indicate that girls are generally more prosocial than boys. As part of the moderation analysis, measurement invariance was first conducted using child sex as a grouping variable. Configural and metric invariance were present in latent variables across boys and girls. That said, the chi-square test result comparing the constrained model that fixed all regression paths to be equal across boys and girls to an unconstrained model that allowed all regression paths to vary across boys and girls showed that the two models were not significantly different from each other, $\Delta\chi^2$ (76) = 83.317, p = 0.2646. This result thus suggested that the process linking material hardship, coparenting alliance, and mothers' and fathers' positive parenting and children's prosocial behavior did not vary across families with boys and families with girls and that the unconstrained model should be retained.

Discussion

The current dissertation study utilized a risk and resilience approach to understanding the effects of material hardship on family functioning (coparenting and responsive parenting) and in turn young children's prosocial behavior in a sample of unmarried mother-father families from socioeconomically disadvantaged backgrounds. We tested four specific hypotheses based on the

FSM and prior research that examined links between material hardship and coparenting alliance (H1); material hardship and mothers' and fathers' positive parenting in the form of responsive parenting (H2); coparenting and mothers' and fathers' responsive parenting (H3); and mothers' and fathers' responsive parenting and children's prosocial behaviors (H4).

Material Hardship and the Coparenting Alliance

Results did not confirm the first hypothesis of the negative effects of material hardship on the coparenting alliance between fathers and mothers (H1). That is, material hardship seemed to have a negligible effect on unmarried mothers' and fathers' reports of the coparenting alliance, suggesting that such families may have figured out a way to be resilient against negative economic circumstances and keep their coparenting relationship strong. Much of the quantitative literature has focused on examining relationship quality, family instability, and fertility characteristics as predictors of coparenting in unmarred parent families (Bronte-Tinkew, & Horowitz, 2010; Goldberg & Carlson, 2015; Dush, Kotila, & Schoppe-Sullivan, 2011). There are a few recent exceptions, however, and the current study's findings would appear both consistent and inconsistent with the results of such prior work examining the links between material hardship and coparenting alliance (Curran et al., 2021; LeBaron et al., 2020).

For example, a study by Curran et al. (2021), who applied FSM to a BSF sample of both residential and nonresidential father families, examined the bidirectional links between financial difficulties (defined as inability to pay rent, utility bills, and rent) and unmarried parents' coparenting alliance, which used the same coparenting items as those in the current study. They too found that financial difficulties at 15 months were not significantly associated with unmarred parents' coparenting alliance at 36 months. They treated mothers' and fathers' reports of coparenting alliances as separate observed variables, instead of a dyadic latent variable as in the

current study, in their model. That is, the current study findings seem to support the null relationship between material hardship and coparenting alliance found in a prior BSF study.

However, another recent study using a BSF sample (with only couples who were still romantically involved at the 36-month follow-up irrespective of fathers' residential status) found that fathers' reports of material hardship had a significant negative relationship with fathers' reports of the coparenting alliance, whereas no significant link was found between mothers' reports of material hardship and mothers' reports of the coparenting alliance (LeBaron et al., 2020). These authors concluded that when faced with financial stressors, such as material hardship, fathers with low income may feel the need to prioritize economic provision over the coparenting alliance with their partners. This pressure to provide financially may undermine fathers' ability to engage in a supportive coparenting alliance with mothers (LeBaron et al., 2020). However, results from the current study did not find this negative association between material hardship and the coparenting alliance. Perhaps this discrepancy across studies could be due to the different ways in which the material hardship and coparenting alliance variables were created (i.e., the current study's use of a dyadic latent variable representing the coparenting alliance at the couple level in contrast to other studies that used separate reports of mothers' and fathers' coparenting). In addition, mothers' reports of material hardship were primarily used in the current study, which may not be how fathers experience material hardship or what they might report. Thus, this may be one reason why material hardship was not related to coparenting alliance. The couple-level coparenting alliance seems to be resilient o the potentially negative effect of material hardship families experience.

Qualitative research also sheds light on how some unmarried parents navigate their coparenting relationship in the context of poverty, underscoring the resilience of the couple

relationship to adverse stressors. For example, Jamison, Ganong, and Proulx (2017) conducted interviews with 22 racially diverse unmarried parent families from low income backgrounds to explore resilience processes in mothers' and fathers' coparenting and found that management of available financial resources (i.e., have the appropriate resources and can mobilize them to address economic stressors) was a key factor that distinguished unmarried parent families that successfully adapted and engaged in positive coparenting from those who found it difficult to do so. Those couples who were successful at maintaining positive and supportive coparenting relationships were able to do so by utilizing resources in ways that helped reduce the source of stress (e.g., avoid overdue bills), increased social capital that buffers the impact of stressors (e.g., recruit help for childcare), and maximized the benefits of a resource (e.g., save money by shopping smart). Importantly, both mothers and fathers took joint responsibilities for childcare, had low levels of conflict, and shared similar values around parenting. That is, these couples focused on working together as a team, had little stress in their coparenting arrangements as a result, and found creative ways to mitigate economic challenges.

Perhaps many of the families in the current study were similar to these couples described by Jamison et al. (2017), as they seemed to be resilient to the effects of material hardship and were still able to maintain a strong coparenting alliance that, in turn, supported responsive parenting toward their children. Even in the context of material hardship, it appears that some BSF mothers and fathers were able to build a successful coparenting relationship that served them and their children well. For these families, having a strong alliance between mothers and fathers around coparenting seemed to play a protective role against the negative effects of material hardship.

Material Hardship and Parental Responsiveness by Fathers and Mothers

The second hypothesis in which a significant negative effect of material hardship on both mothers' and fathers' responsive parenting was expected was not confirmed (H2). To the contrary, material hardship significantly and *positively* predicted responsive paternal behavior, but not responsive maternal behavior during parent-child interactions. This is inconsistent with what FSM proposes, namely that families' economic insecurity, including experiencing material hardship, is linked with less involved or harsh and punitive parenting (Conger et al., 1994; 2010). That said, what FSM failed to recognize, at least as it appears to be the case with BSF fathers in the current study, is the fortitude with which fathers navigate the challenges of material hardship and low socioeconomic resources and focus their efforts on their engagement with their children. Importantly, the finding that there is a positive link between material hardship and fathers' positive parenting supports prior work (Abdill, 2018; Downer & Mendez, 2005; Edin & Nelson, 2013; Fagan et al., 2016; Mattis et al., 2020; Threlfall et al., 2013). We did not find the same associations for BSF mothers and this may be because fathers still carry a greater social expectation to provide economically for their families than mothers (Christiansen & Palkovitz, 2001).

Both quantitative and qualitative research, especially with Black fathers from low-income urban settings, has demonstrated the creative and resilient ways such fathers are involved in their children's lives precisely because of the economic difficulties they face (Abdill, 2018; Mattis et al., 2020; Threlfall et al., 2013). For example, these fathers are likely to emphasize values, such as developing a strong bond with their children, engaging in childcare, teaching specific skills, investing in their children's socioemotional development, and showing affection to them (Mattis et al., 2020; Threlfall et al., 2013). Similarly, fathers with limited financial resources may have little control over the economic landscape, unemployment rates, and low wages to alleviate the

material hardship their families experience, but they do still have control over the relationships they can develop with their children and, in turn, their influence on children's development. BSF fathers who may not be able to fulfill traditional breadwinner roles may still be able to find ways to positively parent their children and thus feel empowered in their roles as fathers (Abdill, 2018).

Fathers' contributions to children' prosocial development is a relatively understudied area, yet BSF fathers' responsive parenting was positively linked with their children's prosocial behaviors in the current study. Such findings are consistent with prior research finding that fathers' early positive parenting in the form of high levels of sensitivity when children were 54 months old were longitudinally related to children's prosocial behaviors when they are 9 years old (Newton et al., 2014).

Coparenting and Responsive Parenting in the Family Predicts Children's Prosocial Behaviors

The hypothesis that coparenting alliance would have a significantly positive association with both mothers' and fathers' responsive parenting was indeed confirmed (H3) as was the hypothesis that mothers' and fathers' responsive parenting would significantly predict greater levels of children's prosocial behaviors (H4). FSM posits that economic insecurity, including not having sufficient material resources, can lead to increased conflict between parents and punitive parenting, which are ultimately linked with poor child adjustment (Conger et al., 1994; 2010). Clearly, not every family experiences the negative impact of economic insecurity as proposed by FSM. Even in the context of material hardship, BSF families reported high levels of coparenting support, which was then associated with more responsive parenting by mothers' and fathers and subsequently children demonstrated more prosocial behaviors. This is consistent with

coparenting research stemming from family systems theory, which argues that when two parents can coordinate and cooperate in their parenting roles, they develop an "executive subsystem" that improves family functioning and thus children's developmental outcomes (Cox, Paley, & Harter, 2001; Minuchin, 1988).

The benefits of cooperative coparenting relationships, characterized by greater support, constructive communication, and warmth for parents and their children (Minuchin, Colapinto, & Minuchin, 2007; Nunes, Roten, Ghaziri, Favez, & Darwiche, 2020; Teubert & Pinquart, 2010), including those from socioeconomically disadvantaged backgrounds, are well documented in the literature (Coley & Chase-Lansdale, 1999; Hohmann-Marriott, 2011; Lee et al., 2020). Overall, as shown in the current study, a strong coparenting alliance appears beneficial to both parents and children. Research has shown that irrespective of relationship status, when parents cooperated, fathers with low income were more likely to spend time with their children (Coley & Chase-Lansdale, 1999), engage in caregiving and cognitively stimulating activities (Lee et al., 2020), and provide instrumental support and communicate with the mother about their children (Hohmann-Marriott, 2011). Available research also suggests that, for mothers from low income backgrounds, positive coparenting in the form of support and communication is linked with increased levels of mothers' positive perceptions of fathers' engagement (e.g., childcare and play activities with the children) (Fagan & Palkovitz, 2012) and mothers' supportive parenting behaviors toward the child characterized by high levels of sensitivity, cognitive stimulation, and positive regard (Cabrera, Scott, Fagan, Steward-Streng, & Chien, 2012).

In the current study, the coparenting alliance between mothers and fathers had an indirect effect on children's prosocial behaviors through promoting both mothers' and fathers' responsive parenting. This is consistent with prior research showing similar mechanisms by which

coparenting is positively linked to children's developmental outcomes (Cabrera et al., 2012; Yan, Schoppe-Sullivan, & Kamp Dush, 2018). For example, Cabrera et al. (2012) used a sample from Early Childhood Longitudinal Study-Birth Cohort to show that for both married and cohabiting families, coparenting communication between mothers and fathers when children were 24 months old was positively linked with mothers' supportive parenting at 24 months, which was then linked with 4-year-old children's social skills—in the form of playing with other children, paying attention well, and trying to understand others.

Collectively, the current findings, as well as prior research, suggest that should parents with low income work to maintain supportive coparenting relationships, even in economically challenging circumstances, mothers and fathers can still engage in the responsive and stimulating parenting practices that ultimately benefit their children's socioemotional development. Again, supportive coparenting seems to be playing a protective role amidst risk ensued by material hardship. According to family systems theory (Minuchin, 1988), the coparenting alliance works as an "executive subsystem" that contributes to both mothers' and fathers' abilities to successfully engage in positive parenting behaviors that promote and support their young children's social and emotional development.

Limitations

There are several limitations to the current study that need to be noted. Although food insecurity is a key aspect of material hardship, we were unable to include it as part of the measure of material hardship because the BSF project did not collect information on food needs BSF families faced. Further, results cannot be generalized to larger groups of unmarred parent families with low income because BSF families were a unique group willing to participate in a marriage and relationship improvement intervention, and only the subset of families with

residential fathers, participated in the home observations that served as the basis of the observational parenting variables used here. These families were likely highly motivated to strengthen their coparental and parent-child relationships from the beginning. Unmarried parents are diverse and therefore family processes may playout differently depending on the residential status of the father, as well as families' race and ethnicity. Future studies may consider using family structure and race and ethnicity as possible moderators. Despite these limitations, the current study contributes to the literature by taking a strengths-based approach to family stress brought on by economic hardship and the inclusion of both risk and resilience to understanding family processes in a large and racially diverse sample of unmarried parent families with young children.

Implications for Family Strengthening Policies and Practices

The findings have implications for family strengthening policies and practices as well. As it pertains to the national Healthy Marriage and Responsible Fatherhood (HMRF) policy initiatives and subsequent responsible fatherhood programs, one of the goals of these policy and programmatic efforts has been to help fathers overcome barriers (i.e., unemployment, child support orders, relationship instability, access to parenting education) so that they can engage in nurturing parenting (Patnaik & Avellar, 2020). The main idea is that by improving fathers' parenting, responsible fatherhood programs can ultimately benefit children. Results of the current study primarily suggest that focusing on strengthening the coparenting alliance in the face of economic stressors may be especially fruitful, as a strong coparenting alliance seemed to emerge as a protective factor, in the family that promoted responsive fathering. Responsible fatherhood programs may want to consider focusing on strengthening the sense of solidarity and teamwork around coparenting between unmarried mothers and fathers.

Prior large demonstration projects, funded by the Administration of Children and Families at the U.S. Department of Health and Human Services, including the BSF project, and the more recent Parents and Children Together (PACT), have not given much attention to strengthening the coparenting alliance, and supporting parents to work together as parents to raise their children to the same extent as these programs focus on the couple relationship and marriage (Wood, Moore, Clarkwest, & Killewald, 2014; Zaveri, Baumgartner, Dion, & Clary, 2015; Avellar, Covington, Moore, Patnaik, & Wu, 2018). For instance, BSF's main goal was to improve marriage rates amongst unmarried couples expecting a child and thus a focus on coparenting was almost nonexistent in the curricula programs used as part of the project (Wood et al., 2014). PACT's main goals were to improve adult and father-child relationships and while the programs included coparenting content in their curricula, much of it seemed to be delivered in a single workshop or formed only a small part of the many lessons under large curricular themes, such as "Parenting and Fatherhood" or "Relationships and Marriage" (Zaveri et al., 2015). Much like BSF, the PACT project seems to have placed a larger focus on improving romantic relationships over coparenting relationships, with workshops focusing on conflict management, communication, and impact of parents' intimate relationships on children (Zaveri et al., 2015).

Not surprisingly, the PACT evaluation did not have any program effects on coparenting, including the coparenting alliance, and recommendations for future projects included a focus on improving coparenting to promote father involvement (Avellar et al., 2018). Smaller scale studies that primarily focus on implementing coparenting interventions—with curricular focus on creating coparenting solidarity, sharing parenting responsibilities, and improving communication around parenting—have demonstrated program effectiveness in reducing coparenting conflict

and improving parenting, including father involvement in caregiving activities (Fagan, 2008; Pruett, Cowan, Cowan, Gillette, & Pruett, 2019). For example, Fagan (2008) conducted a randomized study of the Minnesota Early Learning Design coparenting program with young Black and Latinx couples and found positive program effects on mothers' and fathers' coparenting behaviors and fathers' engagement in infant care. These results suggest that federally funded demonstration projects and responsible fatherhood programs aiming to improve fathers' parenting will do well to focus on implementing programs specifically designed to strengthen the coparenting alliance between mothers and fathers.

Related to this is the importance of including mothers in responsible fatherhood programs, as researchers have suggested that coparenting aspects of these programs would be more effective if mothers were also the recipients of coparenting education and training (Cowan & Cowan, 1995; Fagan, 2008). Recently, McKee et al. (2021) reported that the most significant predictor or parent participation in an intervention directed to low-income parents of infants, was the participation of the other parent. More broadly, coparenting typically involves a minimum of two caregivers and cannot be carried out alone. Programs trying to enhance coparenting relationships may need to reflect this dyadic and family systems nature of coparenting. That is, a coparenting intervention may need buy-in from both fathers and mothers for it be effective in improving the coparenting alliance and thus benefit subsequent family processes. Although three out of four of the PACT programs encouraged mothers to join relationship workshops, they were often not well attended (Dion, Zaveri, & Holcomb, 2015).

Programs like the Young Parenthood Program (YPP; Florsheim, Burrow-Sánchez, Minami, McArthur, Heavin, & Hudak, 2012) and Supporting Fatherhood Involvement (SFI; Pruett et al., 2019) are promising examples of coparenting interventions that include both

parents. A randomized controlled trial of YPP with adolescent fathers and mothers during the prenatal period showed positive direct effects on fathers' engagement in childrearing, fathers' reports of coparenting relationship quality (i.e., coparenting support, conflict, depth in dyadic relationship), and mothers' reports of coparenting competence (i.e., capacity to retain a positive perspective on the coparenting relationship and engage in positive coparenting behaviors) when children were 18 months old (Florsheim et al., 2012). For responsible fatherhood programs to be successful, program staff may need to convince mothers (and fathers) that they play an important role in creating a coparenting alliance that benefits mothers' and fathers' parenting and ultimately, their children's wellbeing.

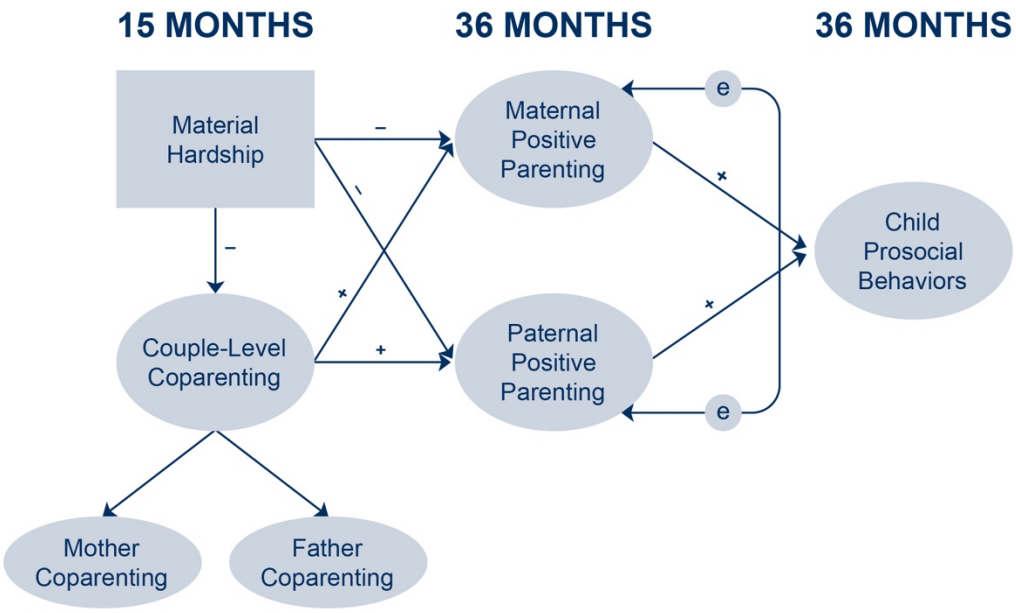

Figure 3.1. Conceptual model for dissertation study 3.

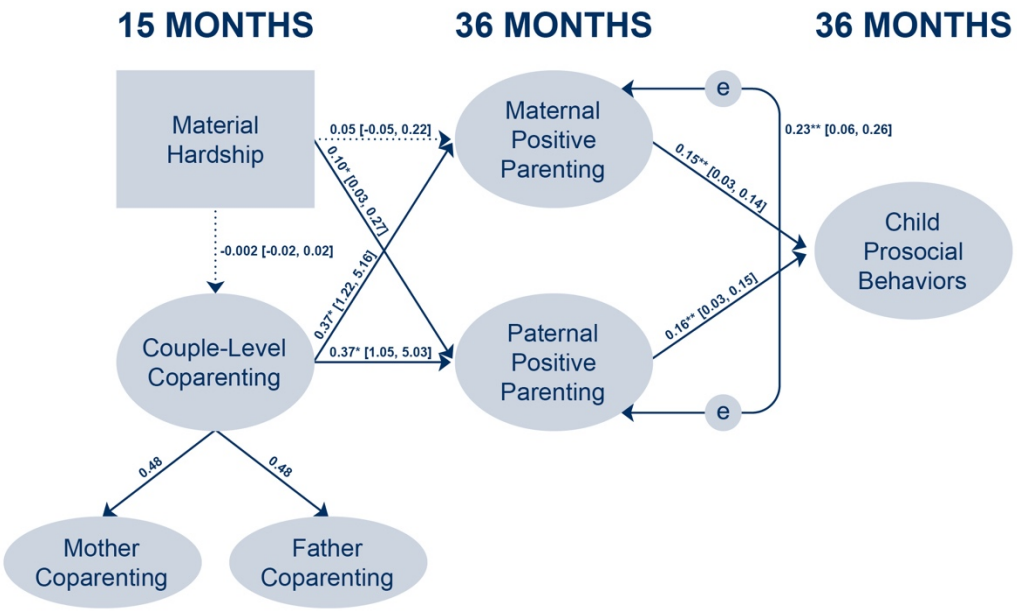

Figure 3.2. Results of the final structural equation model. $\chi^2(829) = 1850.19$, $p < 0.001$, RMSEA = 0.03, 90% CI[0.03, 0.03], CFI = 0.94, SRMR = 0.04. The model controlled for couples' race and ethnicity, education level, relationship length, mothers' employment status, fathers' employment status, mothers' depressive symptoms, fathers' depressive symptoms, mothers' multiple partner fertility, fathers' multiple partner fertility, BSF random assignment status, and BSF program site location. Maternal depressive symptoms (β = 0.12, $p < 0.001$) were significantly associated with families' material hardship. Being Latinx (β = -0.32, $p < 0.001$), maternal depressive symptoms (β = -0.33, $p < 0.001$), and paternal depressive symptoms (β = -0.28, $p < 0.001$), and BSF random assignment status (β = 0.09, $p < 0.04$) were significantly associated with couple-level coparenting. Neither parent having a high school diploma (β = -0.12, $p = 0.02$) was significantly associated with fathers' positive parenting. Mothers' employment (β = 0.10, $p = 0.02$), fathers' employment (β = 0.12, $p = 0.01$), and fathers' multiple-partner fertility (β = -0.09, $p = 0.03$) were significantly associated with mothers' positive parenting. Being Latinx (β = -0.28, $p < 0.001$) and only one parent having a high school diploma (β = -0.07, $p = 0.02$) were significantly associated with child prosocial behaviors. Dotted line indicates a nonsignificant path. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 3.1. *Fit Indices of Individual Confirmatory Factor Analysis Models*

Model	*df*	χ^2	*p*	RMSEA	90% CI	CFI	SRMR
Coparenting relationship quality							
First-order coparenting by mothers	35	104.53	< 0.001	0.06	[0.06, 0.07]	0.98	0.02
First-order coparenting by fathers	35	97.61	< 0.001	0.05	[0.04, 0.07]	0.98	0.02
Second-order coparenting by couples	170	356.06	< 0.001	0.04	[0.03, 0.04]	0.98	0.03
Fathers' positive parenting	2	0.34	0.85	0.00	[0.00, 0.04]	1.00	0.03
Mothers' positive parenting	2	6.24	0.04	0.05	[0.01, 0.10]	1.00	0.05
Fathers' positive parenting and mothers' positive parenting combined	27	67.07	< 0.001	0.04	[0.03, 0.06]	0.98	0.03
Second-order coparenting and parents' positive parenting combined	394	717.78	< 0.001	0.03	[0.03, 0.03]	0.98	0.03

Note. RMSEA = Root Mean Square Error Approximation. CI = Confidence Interval. CFI = Comparative Fit Index. SRMR = Standardized Root Mean Square Residuals.

Table 3.2. *Measurement Model: Factor Loadings for Latent Variables*

Indicator	Unstandardized estimate	*SE*	*p*	Standardized estimate
Coparenting relationship quality				
First-order coparenting by mothers				
CO1A: Child's other parent is a good parent	1.00	--	--	0.68
CO1B: Other parent and I communicate well	1.34	0.09	< 0.001	0.68
CO1C: Feel good about other parent judgement	1.45	0.10	< 0.001	0.72
CO1D: Other parent makes parenting job easier	1.83	0.11	< 0.001	0.74
CO1E: Other parent and I are a good team	1.63	0.10	< 0.001	0.79
CO1F: Other parent knows how to handle child	1.44	0.10	< 0.001	0.71
CO1G: We work a good solution together	1.54	0.10	< 0.001	0.77
CO1H: Other parent willing to sacrifice	1.40	0.09	< 0.001	0.73
CO1I: Look forward to talking with other parent	1.30	0.09	< 0.001	0.74
CO1J: Other child pays attention to child	1.30	0.07	< 0.001	0.72
First-order coparenting by fathers				
CO1A: Child's other parent is a good parent	1.00	--	--	0.67
CO1B: Other parent and I communicate well	1.23	0.07	< 0.001	0.66
CO1C: Feel good about other parent judgement	1.31	0.06	< 0.001	0.76
CO1D: Other parent makes parenting job easier	1.43	0.08	< 0.001	0.67
CO1E: Other parent and I are a good team	1.39	0.06	< 0.001	0.77
CO1F: Other parent knows how to handle child	1.40	0.06	< 0.001	0.80
CO1G: We work a good solution together	1.30	0.07	< 0.001	0.72
CO1H: Other parent willing to sacrifice	1.35	0.07	< 0.001	0.80
CO1I: Look forward to talking with other parent	1.28	0.07	< 0.001	0.71
CO1J: Other child pays attention to child	1.28	0.07	< 0.001	0.75
Second-order coparenting by couples				
First-order coparenting by mothers	1.00	--	--	0.50
First-order coparenting by fathers	1.00	--	--	0.50

Table 3.2. *Measurement Model: Factor Loadings for Latent Variables (Continued)*

Indicator	Unstandardized estimate	*SE*	*p*	Standardized estimate
Mothers' positive parenting				
Sensitivity	1.00	--	--	0.88
Detachment (reversed)	0.74	0.05	< 0.001	0.67
Positive regard	0.71	0.04	< 0.001	0.71
Negative regard (reversed)	0.46	0.04	< 0.001	0.46
Cognitive stimulation	0.48	0.05	< 0.001	0.42
Fathers' positive parenting				
Sensitivity	1.00	--	--	0.89
Detachment (reversed)	0.75	0.05	< 0.001	0.66
Positive regard	0.70	0.05	< 0.001	0.69
Negative regard (reversed)	0.43	0.04	< 0.001	0.41
Cognitive stimulation	0.57	0.05	< 0.001	0.48

Table 3.3. *Sample Characteristics*

Variable	*M* (*SD)* or %
Mothers' age (range: 18-41 years)	23.72 (4.95)
Fathers' age (range: 18-61 years)	25.95 (6.16)
Couples' ethnicity and race:	
Black	39.37%
White	19.94%
Latinx	30.98%
Other	9.71%
Couples' education:	
Neither parent has high school diploma	16.15%
One parent has high school diploma	32.87%
Both parents have high school diploma	50.98%
Couple married (Yes)	9.53%
Mothers' employment status (Yes)	31.29%
Fathers' employment status (Yes)	81.28%
Mothers' multiple-partner fertility (Yes)	29.82%
Fathers' multiple-partner fertility (Yes)	26.73%
Child sex (Boy)[a]	48.35%
Assignment in the BSF program (Intervention)	51.05%
Monthly family income[a]	$2,630.19 ($4,773.37)
Maternal depressive symptoms[a] (range: 1-4)	1.36 (0.48)
Paternal depressive symptoms[a] (range: 1-4)	1.27 (0.36)
Material hardship[a] (range: 0-4)[a]	1.37 (0.60)
Mothers' report of coparenting relationship quality (range: 2-5)[a]	4.58 (0.50)
Fathers' report of coparenting relationship quality (range: 2.3-5)[a]	4.67 (0.40)
Mothers' positive parenting (range: 1.4-7)[b]	4.85 (0.77)
Fathers' positive parenting (range: 2.2-7)[b]	4.87 (0.75)
Child prosocial behaviors (range: 0-3)[b]	2.34 (0.54)

Note. N = 1,375. Otherwise stated, all variables are from baseline when couples enrolled in the BSF program. BSF = Building Strong Families. [a]Variable is from the 15-month follow-up period. [b]Variable is from the 36-month follow-up period.

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Chapter 5 General Discussion

The overarching goal of the current dissertation was to understand family processes underlying family poverty and young children's developmental outcomes in unmarred parent families with low income. Researchers and policymakers alike have grown an interest in studying this group of families, given increases in numbers of children born to unmarried parents over the last several decades and the multiple structural barriers such families face (Brown, 2010; Kopystynska, Paschall, Barnett, & Curran, 2017). For example, the rate of nonmarital childbearing rose from 5% in 1960 to 28% in 1990 and to 40% in 2015 (Child Trends, 2015; Wildsmith, Manlove, & Cook, 2018), and women who give birth outside of marriage tend to face more disadvantages and barriers than their married counterparts (Child Trends, 2015). Poverty is a key structural barrier that adversely affects unmarried parents and their children. According to the Family Stress Model (FSM; Conger et al., 1994, 2010), economic insecurity negatively impacts parents' mental health, interparental relationship quality, the coparenting alliance, and positive parenting practices (Conger et al., 1994, 2010; McLoyd, 1990; Parke, Coltrane, Duffy, Buriel, Dennis, Powers, French, & Widaman, 2004; Curran, Li, Barnett, Kopystynska, Chandler, & LeBaron, 2021). Deteriorating parental mental health, interparental relationship quality, and parenting practices may then spillover to children and thus lead to poor developmental outcomes (Conger et al., 1994, 2010; McLoyd, 1990; Parke et al., 2004; Gard, McLoyd, Mitchell, & Hyde, 2020).

Early childhood is an important period for children's development. Thus, there is a critical need to support the mental and relational health of parents, which could reduce stress and promote positive parenting behaviors towards their children. Developing and maintaining positive family functioning may be exceptionally challenging for unmarried parents given economic stressors, such as low family income and material hardship. Although FSM has been

applied to a wide range of samples (e.g., rural to urban, Black and Latinx families), researchers have also noted the need to test the model with more diverse samples and families with young children, using longitudinal data (Barnett, 2008; Conger et al., 2010). Recent efforts have used racially diverse samples, including unmarried parents with young children from the Building Strong Families (BSF) project (Barnett, Paschall, Kopystynska, Warren, & Curran, 2020; Curran et al., 2021).

A careful look at these studies though revealed still unaddressed gaps. For example, Curran et al. (2021) conducted longitudinal analyses to test the FSM, examining the links between financial difficulties, parental depressive symptoms, destructive interparental conflict, and coparenting alliance. Because the researchers were primarily interested in understanding the reciprocal relations between these variables present at the 15- and 36-month follow-up periods, they focused on conducting cross-lagged analyses and did not demonstrate how family processes involving financial difficulties might be ultimately related to children's developmental outcomes. On the other hand, Barnett et al. (2020) did include children's effortful control and externalizing and internalizing behavior problems as developmental outcomes in their model testing the FSM. They primarily focused on the links between parental relationship changes, parental depressive symptoms, mothers' and fathers' supportive and harsh behaviors, and children's developmental outcomes. That said, the researchers relied on cross-sectional analyses using the 36 month-follow-up data only and thus were not able to infer causality or directionality involved in the tested family processes (Barnett et al., 2020).

In summary, despite efforts to heed prior recommendations, additional work is needed to test the FSM longitudinally to examine how family processes involving economic stress unfold in racially diverse unmarried families to ultimately impact their young children's development.

To address gaps in the literature, this dissertation sought to use BSF samples to test the FSM longitudinally whilst also including children's developmental outcomes where appropriate. Specifically, whenever possible, data from all three timepoints in the BSF project were used and children's developmental outcomes were included in two out of the three dissertation studies. It also used both mothers' and fathers' data for all three studies. The dissertation employed advanced methodologies, including Bayesian statistics and dyadic analysis, to build on prior FSM work and accurately model the joint nature of parental relationships. Overall, this dissertation makes an important contribution to the literature by using data from a racially diverse sample of unmarried parents with young children drawn from the BSF project, elucidating the specific longitudinal family processes by which economic insecurity impacts young children's developmental outcomes, and doing so by using advanced statistics that help model complex interactional patterns happening in the family.

Dissertation Research Questions and Common Themes Across Studies

The current dissertation asked several questions related to family processes linking economic insecurity to young children's developmental outcomes. These questions were organized using a three-study dissertation model. Study 1 was an exploratory study using a person-centered approach to test the father-child activation relationship theory's proposal that fathers engage in activation parenting—which is moderately intrusive but also combined with moderately high levels of sensitivity, positive regard, cognitive stimulation—have benefits for their children's development. Study 2 used Bayesian mediation analysis to investigate the links between economic insecurity, defined as income poverty and material hardship, and destructive interparental conflict via mothers' and fathers' depressive symptoms. Study 3 employed structural equation modeling (SEM) to examine the associations between material hardship and

children's prosocial behaviors, testing the coparenting alliance, mothers' positive parenting, and fathers' positive parenting as mediators.

All three studies used samples of residential father families from the BSF project. The rationale to use only residential father families was based on evidence that family processes playing out in residential father families are quite different from those in nonresidential father families, given that residential fathers are more accessible to their children than nonresidential fathers are because of the co-residential status of residential fathers with their children (Fagan & Palkovitz, 2012; Lee, Volling, Lee, & Altschul, 2020). Residential father families were defined as those in which fathers were living with their children and the mothers all or most of the time based on prior research (Fagan, Levine, Kaufman, & Hammar, 2016). The summaries of the main findings for each study, as well as key themes common across the three studies, are highlighted in the following section.

Dissertation Study 1

The main research question for study 1 focused on testing the father–child activation relationship theory, which suggests that fathers engage in stimulating, challenging, and directive parenting behaviors that are likely to benefit children's development (Paquette, 2004). A BSF sample of $N = 672$ families was used to examine whether fathers and mothers exhibited an activation parenting profile (high sensitivity, positive regard, and stimulation of cognitive development, moderate levels of intrusive/directive behavior, and low detachment and negative regard). Observations of mother–child and father–child parenting behaviors during the two-bags task with preschool children were included in latent profile analysis to reveal three distinct parenting profiles for both fathers and mothers (i.e., supportive, activation, and intrusive), with

the activation profile showing a pattern of moderate intrusiveness combined with sensitivity, positive regard, and cognitive stimulation.

Next, four family configurations were created: (a) supportive mother/supportive father (23.74%), (b) supportive mother/activation father (9.24%), (c) activation mother/activation father (27.31%), and (d) activation mother/supportive father (39.71%). Children with supportive mothers and fathers had higher receptive language scores compared with those from other family groups, and had higher prosocial scores compared with children with activation mothers and activation fathers, but not other family groups (i.e., activation father/supportive mother or supportive father/activation mother). Overall, results from study 1 supported Paquette's (2004) father-child activation relationship theory by noting a pattern of parenting behaviors used by fathers (and mothers) in which parents are moderately intrusive, challenging, or directive with their children, yet still sensitive and positive in their interactions.

Dissertation Study 2

The main research question for study 2 was to examine mechanisms by which economic insecurity contributes to mothers' and fathers' mental health and thus couples' relationship functioning as proposed by FSM. A BSF sample of $N = 2{,}794$ families were used. Economic insecurity included both families' household income and material hardship. Bayesian mediation analysis was employed, taking advantage of the prior evidence base of the family stress model. FSM studies published in the last two decades with samples of similar sociodemographic characteristics (i.e., racially diverse, unmarried couples, families with low income) were searched. A total of 13 studies were identified, and their results were pooled to create prior distributions that were mathematically incorporated into the study's analytic models.

Results of the Bayesian mediation analysis showed that material hardship worked above and beyond household income to directly predict couples' destructive conflict for both mothers and fathers. Indirect effects of material hardship on couples' destructive conflict through parental depressive symptoms was found for mothers only. Direct relationships between material hardship and interparental conflict were found for both mothers and fathers. The economic stress of meeting the daily material needs of the family set the stage for parental mental health problems that carry over into destructive interparental conflict, especially through maternal depressive symptoms. That is, the results support family processes proposed by FSM but mainly for mothers. Relatedly, the results did not support the notion that the social pressures of "stepping up" economically are associated with fathers' mental health.

Dissertation Study 3

The main research question for study 3 was to examine family processes linking material hardship and children's prosocial behaviors via unmarried parents' coparenting alliance and mothers' and fathers' positive parenting. Importantly, this study took a risk and resilience framework to understand better how mothers and fathers in such families successfully navigated coparenting and parenting in the context of material hardship. A BSF sample of $N = 1,375$ families was used. Before conducting SEM, exploratory and confirmatory factor analyses were conducted to construct latent variables for the mediating variables: Coparenting alliance and mothers' and fathers' positive parenting. In particular, the latent variable for the coparenting alliance was built as a second-order couple-level latent variable, representing the dyadic nature of mothers and fathers working together to form a coparenting team. Parenting indicators obtained from observations of mother–child and father–child interaction sessions during the two-bags task were used to create positive and responsive parenting latent variables for mothers and

fathers that reflected sensitivity to children's cues, holding children in high regard, and cognitively stimulating them during play, while limiting intrusiveness, and refraining from detached engagement during interaction.

Results of SEM showed that material hardship was positively linked with fathers' responsive parenting only. Coparenting alliance was positively linked with both fathers' and mothers' responsive parenting. Subsequently, both parents' responsive parenting was positively linked with children's prosocial behaviors. Tests of indirect effects confirmed that the coparenting alliance operated through both mothers' and fathers' positive parenting to have a positive effect on children's prosocial behaviors. These results indicated that that when unmarried mothers and fathers have a strong coparenting alliance, they are likely to withstand the negative effects of material hardship and still engage in positive parenting behaviors that benefit their children's prosocial development.

Key Themes Common Across the Three Dissertation Studies

The three dissertation studies shared a similar sample of families where mothers and fathers were predominantly unmarried, from low-income backgrounds, and were residential with each other and their children. That is, a common theme was that all three studies focused on examining the lives of parents and children from socioeconomically disadvantaged backgrounds. Beyond this obvious theme, there were a few other key themes that were present across the studies. For details, see Table 5.1.

First, all three studies speak to some extent to the message that unmarried residential fathers play an important role in their families' lives, especially their young children's development. Study 1 showed that activation fathering—characterized by moderate levels of intrusiveness combined with moderately high levels of other positive parenting dimensions—

was just as beneficial to young children's socioemotional outcomes (e.g., prosocial behaviors) as supportive fathering when mothers were supportive. That is, fathers' engagement in this type of challenging and directive parenting behaviors makes similarly important contributions to children's socioemotional development as fathers' engagement in sensitive and responsive parenting behaviors. Although study 2 did not include child outcomes, it focused on the upstream pathways (i.e., economic insecurity predicting parental mental health problems and thus interparental conflict) that would be consequential for children's development. Further, while mothers seemed to be most impacted by the negative effects of material hardship and parental depression, these findings do not negate the role of fathers can play to alleviate maternal distress. Study 2 findings have implications for assisting fathers so that they can better support mothers in reducing depressive symptoms in early childhood and thus decrease the amount of destructive conflict within the family. Study 3 directly tested and found a positive link between fathers' positive parenting and children' prosocial development. Unmarried fathers' engagement in positive parenting behaviors—which can be viewed as being responsive with high levels of sensitivity, cognitive stimulation, positive regard—was associated with more prosocial behaviors (e.g., demonstrating concern for others in distress) in young children.

Second, all three studies share a common theme around navigating environmental factors like poverty and economic insecurity and managing family stress stemming from them. Study 1 primarily focused on testing the father-child activation relationship theory and thus did not include an index of poverty or economic insecurity in the analytic models. That said, BSF fathers in the models were from highly disadvantaged backgrounds (over 70% earned less than $20,000 a year). Of interest was whether fathers facing environmental barriers like poverty would engage in activation parenting as proposed by Paquette (2004) and tested by others using similarly

disadvantaged samples (Ryan, Martin, & Brooks-Gunn, 2006). BSF fathers not only demonstrated activation fathering, but also their activation fathering was shown to be beneficial to their young children's socioemotional development. Said differently, BSF fathers managed to successfully engage in a type of positive parenting previously theorized amidst the economic insecurity they faced. Studies 2 and 3 more specifically elucidated the actual process by which unmarried mother and parents navigate relationship conflict, coparenting alliance, and positive parenting. Study 2 specifically showed that maternal depressive symptoms is an important mediator to address in the context of material hardship so that mother and fathers can lessen their engagement in destructive conflict behaviors (e.g., blaming each other). Study 3 showed that when coparenting alliance is exceptionally strong, it could serve as a buffer against the negative effects of material hardship. BSF mothers and fathers navigated the challenges of material hardship by maintaining a strong sense of coparenting solidarity which allowed them to engage in positive parenting that benefited their children's prosocial development.

Finally, coparenting between mothers and fathers within a family system emerged as the third key theme, with all three studies including both mothers and fathers in their analyses. As part of study 1, the analyses focused on family configurations by examining which parenting profiles mothers and fathers adopt within the same families. Results showed that mothers and fathers took on both identical and different parenting profiles, which were differentially linked with children's developmental outcomes. This speaks to how fathers' and mothers' parenting styles interact with each other to create different home environments that may be conducive for positive child outcomes. Study 2 looked at mothers' and fathers' interparental relationship quality, and more specifically, destructive interparental conflict behaviors, as the main outcome. Although destructive interparental conflict is conceptually different than coparenting, prior

research has shown close links between partner relationship quality and coparenting in families with low income (Adler-Baeder, Calligas, Skuban, Keiley, Ketring, & Smith 2013; Conger, Cui, & Lorenz, 2011; Cowan & Cowan, 2019). It is not surprising to know that when couples are able to resolve their differences in constructive ways, they may be more likely to build a strong coparenting team than if they resolved differences in destructive ways (Cowan & Cowan, 2019). Navigating relationship conflict still requires mothers and fathers working differences out, be it constructive or destructive, indicating a joint or dyadic process taking place in the family system. Study 3 incorporated a couple-level coparenting alliance variable to reflect precisely the dyadic nature of coparenting teamwork occurring in the family. The coparenting alliance was resilient to the negative effects of material hardship, suggesting that mothers and father can benefit themselves and their children when they can build strong and supportive teams around parenting their children together.

Implications for Social Work Practice and Policy

Results from this dissertation have implications for social work practice and policy related to supporting and strengthening unmarried parent families with young children. These implications take two major forms: (1) one is at the individual (or more accurately interpersonal) level in the form of building strong coparenting relationships through early coparenting interventions; and (2) another one is at the structural level in the form of ensuring families have resources and skills to address economic insecurity through expanding the country's safety net programs. The challenges unmarried parent families experience, including poverty and economic insecurity, are multifaceted and related family processes are complex as demonstrated by some of the results of the current dissertation. This points to the need for equally comprehensive and multilevel solutions that can address the complexities unmarred parent families and their children

face. That is, poverty and its deleterious impact on families and children need to be addressed from multiple angles—both at the individual and structural levels—and social workers play important roles in both spheres.

Building Strong Coparenting (Not just Romantic) Relationships Should be a Central Part of Family Strengthening Interventions

This dissertation suggested that when unmarried parents work together as a team, they are likely to succeed in engage in parenting behaviors that benefit their children's development, even in the face of economic difficulties. As noted in the discussion section of study 3, this points to the promise of building strong coparenting alliances amongst unmarried parents to promote family stability. Researchers studying unmarried parents have echoed similar messages (McLanahan, Garfinkel, Mincy, & Donahue, 2010; Florsheim & Moore, 2020). For example, summarizing the main results of the Fragile Families and Child Wellbeing study, McLanahan et al. (2010) noted that one of the most important study findings was the high levels of commitment demonstrated between new unmarried parents, which points to the development and implementation of "immediate, intense, and focused" programs that support mothers and fathers to become cooperative coparents. The researchers further recommended that coparenting programs take the form of treating parents early, often, and together (McLanahan et al., 2010).

Building on McLanahan et al.'s (2010) suggestion, social workers serving unmarried parent families will do well to think about targeting such families "early" on during the perinatal period when couples are expecting or recently had their new babies. Research shows that parents tend to be more open to receiving guidance and support, as well as introducing lifestyle changes during this time of their lives (Florsheim & Moore, 2020). Preparing for and welcoming a new baby may be some of the optimal moments for stabilizing families, who face multiple

socioeconomic disadvantages, through interventions that help them build strong coparental bonds. Social workers play important roles in recruiting families, delivering coparenting interventions, and following up with families after the interventions. For example, as part of recruitment, social workers can help parents recognize how important this moment is for their families' wellbeing, as well as the value of working together as coparents given the benefits to themselves and their new babies.

Relatedly, social workers may want to consider the right dosage of intervention (e.g., how often or frequently families receive coparenting training) for unmarried parents depending on their specific needs. This gets to the "often" aspect of McLanahan et al.'s (2010) recommendations. Some unmarried parents may need multiple short sessions spread across weeks of a coparenting intervention, while others may find weekly or biweekly sessions burdensome and need fewer but more intensive sessions. Connected to this point is that some parents may want to learn how to improve their coparental communication skills with one another (e.g., being on the same page about caregiving routines or discipline) while others may want to focus on supporting each other's needs and thus reduce parenting stress needs (e.g., taking shifts in feeding and changing the baby so the other parent can rest). Coparenting sessions may look different depending on content and dosage needs of the parents. In general, however "often" is defined, it will be important for coparenting interventions to tailor their services to meet the needs of each mother-father dyad (Florsheim & Moore, 2020). Social workers are well-equipped for this work, given their training in comprehensive bio-psycho-social-spiritual assessments of clients and tailoring of individual intervention plans.

The last part of McLanahan et al.'s (2010) recommendation addressing the "together" merits the attention of social workers, as many prior parenting and relationship interventions

have separated mothers and fathers into separate women-only or men-only groups. While there is a time and a space for gender-specific work (e.g., support groups for fathers in responsible fatherhood programs), coparenting fundamentally requires two or more individuals to work together as a team. Coparenting programs should reflect this dyadic nature of coparenting relationships. Developing into a coparental team, improving coparental communication, and learning how the other parent would like to be supported require that both mothers and fathers be in the same physical space. Importantly, supporting both the mother and father build effective coparenting skills is likely to help them in the future, perhaps even long after the partner relationship has ended. Research suggests that while unmarried parents are cohabiting when their children are born, close to half of them will be living apart by the time their children are 3 years old (Graefe & Lichter, 1999; Osborne & McLanahan, 2007). Whether unmarried parents stay together or not, because the focus is on being an effective team for the child (and not keeping couples together per se), coparenting interventions are likely to help unmarried parents build skills that could be applied versatilely across family structures.

Social workers play a key role in encouraging both mothers and fathers to be part of a coparenting intervention, as well as helping them work through differences within coparenting sessions. Clinical social work skills that leverage family systems theory and dyadic or couple work will be exceptionally useful for ensuring mothers and fathers make the most of the joint sessions and thus strengthen their coparenting alliances. Social workers' education and training in working with diverse families also suggests the importance of thinking about and serving coparental relationships that extend beyond mother-father families. That is, not all families and coparenting relationships involve mothers and fathers, and while the current dissertation focused on mother-father families given the nature of the BSF sample, coparenting dynamics may prove

to be important to other interparental relationships, including same-sex couple and parent-grandparent families. With that in mind, it is also important to recognize that not all parents or caregivers will be able to form strong coparental alliances (e.g., parents in high conflict situations and thus currently live apart). In such cases, alternative solutions, such as shared parenting (also known as parallel parenting where the way in which one parent parents is separate from that of the other parent and/or the two are disengaged from each other with limited direct contact regarding parenting) maybe be more appropriate to promote over coparenting.

Ensuring that Families Have Resources and Skills to Address Economic Insecurity Should be a Key Part of Family Strengthening Policies

This dissertation showed that unmarried parent families with low income experience at least one type of material hardship, which can set the stage for maternal depression and destructive interparental conflict. Interestingly, the BSF project was conducted between 2005 and 2011, including the Great Recession, which began in December 2007 and ended in June 2009 (Rich, 2013). The rates of material hardship amongst families with low income were generally high during the Great Recession. For example, Pilkauskas, Currie and Garfinkel (2012) used data from the Fragile Families Child Wellbeing Study and showed that 41% to 51% of families with low income experienced at least one type of material hardship (e.g., food insecurity, difficulty paying bills, lack of housing, medical problems), depending on their geographic locations and unemployment rates in the areas where they lived. Increases in food and bill hardships were most pronounced as unemployment rates increased. That is, families with low income experienced difficulties meeting their material needs and were under economic strain stemming from one of the worst recessions in the country since the Great Depression (Pilkauskas et al., 2012).

Unmarried parent families today may be in similarly precarious economic predicaments, with the current COVID-19 driven economic fallout. The pandemic and its impact on the economy have led to significant increases in the material hardship households experience. As reported by the American Household Pulse Survey data, a nationally representative dataset, material hardship was more likely to impact families with children than those without in December of 2020. Approximately 18% of families with children did not have enough food to eat in the prior seven days compared to 10% of families without children (Cooney & Shafer, 2021). Compared to 13% and 14% of families without children, 23% and a quarter of families with children found it difficult to pay for household expenses and were behind rents, respectively (Cooney & Shaefer, 2021). That is material hardships are especially high among families with children, which raises concerns about the long-term impact it could have on parents and ultimately children's wellbeing (Center on Budget and Policy Priorities, 2021).

Importantly, such evidence points to ensuring that families with low income have the resources and skills to address economic insecurity and this ought to be done primarily through expanding the country's safety net programs. In general, the use of safety net programs to improve the economic wellbeing of U.S. families lags behind the efforts of other developed countries (McKernan, Ratcliffe, & Iceland, 2018). Researchers showed that participation in safety net programs, such as the Temporary Assistance for Needy Families (TANF or cash assistance), the Supplemental Nutrition Assistance Program (SNAP or food stamps), or public health insurances like Medicaid and State Children's Health Insurance Program (SCHIP) between 1992 and 2011 was associated with almost 50% reduction in the total number of material hardships poverty-impacted families with young children experienced (McKernan et al., 2018). If it were not for SNAP during the Great Recessions, researchers have found that food

insecurity would have increased by twice the actual amount among families with low income (Pilkauskas et al., 2012). These findings suggest that safety net programs play a critical role in protecting families from economic stress and point to the danger of cutting back on them (McKernan et al., 2018).

Unfortunately, some of these safety net programs, such as TANF's precursor Aid to Families with Dependent Children (AFDC), have experienced drastic cuts, in part, because of the 1996 welfare reform that ended the nearly six decades long federal policy that ensured poverty-impacted families with children could receive a minimum level of cash assistance. In place of AFDC, TANF was introduced as block grants states can use at their discretion (basically, does not have to be for cash assistance) and placed a strict lifetime limit of five years for individual families, with states again given the discretion to either shorten or lengthen this time limit. Also, with the federal government moving toward a work-based program like the Earned Income Tax Credit (EITC) that requires recipients work to be eligible, parents with low income have internalized the stigmatizing message that receiving means-tested benefits like TANF are linked with failing to financially support their families (Lee et al., in preparation). For these reasons, TANF is left to its bare bones and no longer viewed as a viable safety net for families experiencing economic hardship (McKernan et al., 2018).

Social workers play an important role in advocating for a robust safety net for families with low income and those experiencing material hardship. The recent passage of the American Rescue Act of 2021 serves as one leveraging point, with provisions like the expansion of the Child Tax Credit and EITC, increases in SNAP benefits, new investments in Women, Infants and Children (WIC) programs, expansion of healthcare, increases in housing assistance, and the creation of emergency funds to support families facing additional hardship. Experts are

projecting that the American Rescue Act will help dramatically reduce poverty in the country. As a case in point, it is expected that approximately 5.5 million children—1.2 million Black and 1.7 million Latinx—will be lifted above the poverty line as a result of the expansions of the Child Tax Credit. The 15% increase in SNAP benefits outlined are expected to address the food hardship that tripled in families during the COVID-19 pandemic. That said, some of the most important provisions, like the expansion of the Child Tax Credit and SNAP and the creation of emergency funds to address families with additional hardship, of the American Rescue Act will end by the end of this year. Social workers will do well by the families they serve by advocating that these provisions become permanent parts of the current safety net programs to ensure the economic security and long-term wellbeing of families and children from low-income backgrounds.

Alongside political advocacy, social workers can contribute to implementing a robust safety program through public education and delivery of services. This could be integrated in large scale demonstration projects like the Parenting and Children Together (PACT) program funded by the federal government. Although PACT is aimed at improving the economic conditions of unmarried fathers, it had limited success (e.g., failed to increase fathers' earnings and their perceptions of economic improvement) (Avellar et al., 2019). This points to the need for such programs to consider integrating coordinated care and services so that families receive support to meet their basic needs with food, utilities, housing, and healthcare. Once these everyday needs are met, unmarried parents are likely to be better positioned to benefit from the programs' coparenting and parenting education. Social workers, with their case management skills, are well-equipped to take on tasks identifying necessary community-based resources, connecting families with those resources, and following-up to ensure families' specific needs are

met. Additionally, social workers could support families around resource management education (e.g., maximizing the benefits of existing material goods and financial resources) (Jamison et al., 2017). These could take the form of individual counseling or group workshops—tools social workers are well trained to use to serve parents, couples, and families in their care.

Final Remarks and Conclusion

Overall, federal healthy marriage initiatives to promote marriage and strengthen relationships amongst couples with low income have not resulted in benefits for families and children (Johnson, 2014). From the perspective of such families, healthy marriage programs seem paternalistic in their assumption that the path forward to helping more children grow up in two-parent households is primarily through promoting marriage and teaching relationship skills to couples with low income and couples of color. The implicit bias underlying these programs is that the problem of increased nonmarital births and single-parent households is fundamentally an individual problem, rooted in lack of personal morality (and hence, poor relationship quality and parenting practices). Healthy marriage programs need to recognize that structural issues like poverty, economic inequality, and systemic racism make it exceptionally challenging and stressful for families with low income and families of color to create stable home environment for themselves and their children.

Multiple large-scale evaluation studies have shown that federally funded healthy marriage programs do not improve the percentages of marriage amongst couples with low income, children living in two-parent households, nonmarital births, and childhood poverty (Johnson, 2012; 2014; Hawkins, Amato, & Kinghorn, 2013; Hsueh, Alderson, Lundquist, Michalopoulos, Gubits, Fein, & Knox, 2012; Bir, Corwin, MacIlvain, Beard, Richburg, Smith, & Lerman, 2012). More specific to BSF, the most recent long-term evaluation study at the 36-

month follow-up of the healthy marriage and relationship skills education program showed no intervention effects on couples' relationship quality and likelihood of marriage in six of the eight program sites (Wood, Moore, Clarkwest, & Killewald, 2014). One site even reported modest *negative* intervention effects on relationship status, family stability, and father involvement (Johnson, 2014; Wood et al., 2014).

Starting in the late 1990s, TANF dollars were used to fund healthy marriage programs, with Congress providing more dedicated funding for healthy marriage grants beginning in 2006. Since then, approximately $2 billion of TANF money have been diverted to fund healthy marriage programming, which as delineated above have not yielded the benefits policymakers were hoping to see (Congressional Research Service, 2021). Promotion of marriage is not the solution for unmarried families when economic inequality and insecurity are at the core of family instability. In fact, Edin and Nelson (2013) showed that couples with low income already valued marriage and that economic hardship was one of the chief reasons why they delayed, or more precisely, were prevented from getting married. When poverty is the problem, spending billions of TANF funding—which is meant to be distributed as cash welfare in the first place—to encourage couples with low income to marry makes little sense. If anything, family strengthening policies should go either upstream and tackle economic challenges families face or make a lateral move that focuses on helping couples build healthy and supportive coparenting relationships (Johnson, 2014; Silva, 2013). TANF funds should be used to build a more robust safety net for poverty-impacted families and additional funding should be allocated for the development and implementation of evidence-based coparenting interventions.

In summary, promoting marital interventions with families with low income has been largely ineffective and even unhealthy for such families. The results from the current

dissertation, along with those from prior research evaluating healthy marriage programs, suggest that coparenting and economic support interventions are likely to be far more helpful in benefitting couples and their children from low income backgrounds than healthy marriage programs per se. Future family strengthening policy and programmatic efforts will do well to consider the growing evidence that healthy marriage programs are not associated with desired family outcomes and thus redirect their attention and resources to more promising approaches, such as those that allow for parents with low income to develop strong coparenting alliances and support them in building economically stable homes for their children.

Table 5.1. *Key Themes Common Across the Three Dissertation Studies*

Dissertation Study	Theme 1: Fathering Role in Child Development	Theme 2: Navigating Economic Insecurity	Theme 3: Coparenting Between Mothers and Fathers
Study 1	Activation fathering had similar benefits to children's socioemotional development as supportive fathering.	Economic insecurity was not directly tested, but mothers and fathers were highly socioeconomically disadvantaged. Such parents still engaged in activation parenting in the context of poverty.	Examined the parenting profiles of mothers and fathers within the same families to understand complex family dynamics around parenting. Found both similar and different parenting profiles for mothers and fathers.
Study 2	Child outcomes were not directly tested, but results suggest the need to help fathers support mothers in alleviating maternal depression in early childhood and thus minimize destructive conflict, which are likely to impact child development.	Material hardship had a direct effect on destructive interparental conflict for both mothers and fathers. Maternal depression served as the mediator, suggesting that targeting maternal mental health may be necessary to reduce material hardship's effect on relationship quality.	Examined mothers' and fathers' relationship quality, especially destructive interparental conflict, as the main outcome, which possibly serves as a determinant of coparenting relationship quality.
Study 3	Positive paternal parenting was associated with increased child prosocial behaviors.	Strong coparenting alliance between mothers and fathers served as a buffer against the negative effects of material hardship on parenting and child outcomes.	Examined coparenting alliance between mothers and fathers as a dyadic variable that serves as families "executive subsystem" that predicts subsequent family functioning.

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