

# **Advancing Research and Measurement on Fathering and Children's Development**

**Edited by**

*Brenda L. Volling,  
Natasha J. Cabrera*

**with Commentary by**

*Ross D. Parke and Jeffrey T. Cookston*

*Patricia J. Bauer*  
**Series Editor**

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Patricia J. Bauer

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# Advancing Research and Measurement on Fathering and Children's Development

## Contents

- I. Advancing Research and Measurement on Fathering and Child Development: Introducing the Issues and a Conceptual Framework 7  
*Brenda L. Volling and Natasha J. Cabrera*
- II. New Fathers' and Mothers' Daily Stressors and Resources Influence Parent Adjustment and Family Relationships 18  
*Mark E. Feinberg, Damon E. Jones, Brandon T. McDaniel, Siwei Liu, and David Almeida*
- III. Longitudinal Measurement Invariance Across Fathers' and Mothers' Reports of Maternal Gatekeeping Behavior 35  
*Jin-kyung Lee, Sarah J. Schoppe-Sullivan, Xin Feng, Micah L. Gerhardt, and Claire M. Kamp Dush*
- IV. In Search of the Father-Infant Activation Relationship: A Person-Centered Approach 50  
*Brenda L. Volling, Matthew M. Stevenson, Paige Safyer, Richard Gonzalez, and Joyce Y. Lee*
- V. What Does It Mean When Fathers Are Involved in Parenting? 64  
*Bernhard Piskernik and Lieselotte Ahnert*
- VI. Longitudinal Contributions of Maternal and Paternal Intrusive Behaviors to Children's Sociability and Sustained Attention at Prekindergarten 79  
*Elizabeth Karberg, Natasha J. Cabrera, Jenessa Malin, and Catherine Kuhns*
- VII. Conceptualizing and Measuring Low-Income, Nonresident Fathers' Contact With Children 94  
*Jay Fagan, Rebecca Kaufman, and W. Justin Dyer*
- VIII. Moving Research on Fathering and Children's Development Forward: Priorities and Recommendations for the Future 107  
*Natasha J. Cabrera and Brenda L. Volling*

References 118

## Commentary

- Many Types of Fathers, Many Types of Contexts: An Agenda for Future Progress in Fathering Research 131  
*Ross D. Parke and Jeffrey T. Cookston*

Contributors 147

Subject Index 152

## I. Advancing Research and Measurement on Fathering and Child Development: Introducing the Issues and a Conceptual Framework

*Brenda L. Volling and Natasha J. Cabrera*

**Abstract** Fathers are more than social accidents. Research has demonstrated that fathers matter to children's development. Despite noted progress, challenges remain on how best to conceptualize and assess fathering and father-child relationships. The current monograph is the result of an SRCD-sponsored meeting of fatherhood scholars brought together to discuss these challenges and make recommendations for best practices for incorporating fathers in studies on parenting and children's development. The first aim of this monograph was to provide a brief update on the current state of research on fathering and to lay out a developmental ecological systems perspective as a conceptual framework for understanding the different spaces fathers inhabit in their children's lives. Because there is wide variability in fathers' roles, the ecological systems perspective situates fathers, mothers, children, and other caregivers within an evolving network of interrelated social relationships in which children and their parents change over time and space (e.g., residence). The second aim was to present examples of empirical studies conducted by members of the international working group that highlighted different methods, data collection, and statistical analyses used to capture the variability in father-child relationships. The monograph ends with a commentary that elaborates on the ecological systems framework with a discussion of the broader macrosystem and social-contextual influences that impinge on fathers and their children. The collection of articles contributes to research on father-child relationships by advancing theory and presenting varied methods and analysis strategies that assist in understanding the father-child relationship and its impact on child development.

It is claimed that the famed anthropologist, Margaret Mead, once said that fathers were biological necessities, but social accidents (Minden, 1982, p. 22). In contemporary society, most would agree that fathers contribute more than their genes to children's development, but exactly how fathering matters to children's development and the processes by which this occurs are less well articulated or understood. This confusion may reflect the fact that there is no

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Corresponding author: Brenda L. Volling, Department of Psychology, University of Michigan, 530 Church Street, Ann Arbor, MI 48109, email: [volling@umich.edu](mailto:volling@umich.edu) and Natasha J. Cabrera, Department of Human Development and Quantitative Methodology, University of Maryland, 3304E Benjamin Building, College Park, MD 20742, email: [ncabrera@umd.edu](mailto:ncabrera@umd.edu)

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grand theory of fathering or father–child relationships so many researchers may struggle with exactly what to assess when they include fathers in studies on parenting, or even if it is necessary to do so when the study already includes mothers. In addition to conceptual lack of clarity, many researchers shy away from including fathers because it is too difficult and expensive to do so. But the reality is that conducting research on fathers requires more effort by investigators on some fronts and a different way of conducting studies on parenting (Mitchell et al., 2007). For instance, how does one best define which men in a child’s life satisfy the role of “father” given the diversity of fathers’ roles (Palkovitz, 2002; Roggman, Bradley, & Raikes, 2013)? How does one recruit (i.e., invite) fathers into studies so they feel welcomed, believe they are important, and have a voice when it comes to parenting their children? Is data collection done at a time convenient for fathers (e.g., evenings and weekends) to accommodate full-time work schedules and multiple jobs? What tools do we have beyond the maternal template to assess and code the father–child relationship? How does one analyze data when multiple caregivers are included in research designs, and what theoretical frameworks are best suited for studying fathers (see the special issue by Adamsons & Palkovitz, 2014)?

#### The International Working Group on Advancing Research and Measurement on Fathering and Children’s Development

To address the role of fathers for children’s development and to advance methodology on fathering for the future, an interdisciplinary working group of international fatherhood scholars was convened June 6 to 7 in 2016 at the University of Michigan to discuss methods, conceptual issues, and measures of father–child relationships in the field of child development. This SRCD-funded meeting responded to the goals of the new strategic plan by advancing research on child development from interdisciplinary and international perspectives. The forum was organized by Brenda Volling and Natasha Cabrera, who were joined by 14 fatherhood scholars who crossed disciplines (e.g., developmental psychology, family studies, pediatrics, social work, anthropology) and international time zones (a full listing of these individuals can be found at the end of the chapter). The meeting was timely as it allowed members from multiple disciplines to converge and consider what we currently know about father–child relationships, and how best to conceptualize fathering and father–child relationships by considering a multilevel systems perspective that spanned from the brain-basis of fathering to fathering behavior to family systems to different cultures.

The main goal of the working group was to start with one piece of a much larger puzzle (i.e., what do we know currently about father–child relationships and how do we make future progress?) and combine decades of scientific expertise among a group of father scholars to discuss the core issues that needed

to be considered by the next generation of developmental research on fathers and children's development. The discussions and presentations from this meeting served as the organizational structure for this monograph.

### Monograph Aims

There were three aims to this monograph, which are reflected in three parts. The first part, which includes this chapter, introduces a developmental ecological systems framework to understand father-child relationships and children's development. Any developmental theory focused on fathering needs to include the father-child relationship context, which is also embedded in a network of social relationships between fathers, mothers, and children that exist within and across various ecological systems (Cabrera, Fitzgerald, Bradley, & Roggman, 2014; see also review by Palkovitz, 2002). The second part of the monograph (Chapters II-VII) provides carefully selected examples of current empirical work on father-child relationships that were presented at the meeting of the working group. These exemplars were chosen for the monograph because they directly addressed several of the core issues generated by the working group and will be presented in greater detail in Chapter VIII (Cabrera & Volling, 2019). Each selected study offered a window into different ways of conceptualizing and measuring fathering behaviors or father-child interaction (Fagan, Kaufman, & Dyer, 2019; Karberg, Cabrera, Malin, & Kuhns, 2019; Piskernik & Ahnert, 2019; Volling, Stevenson, Safyer, Gonzalez, & Lee, 2019), utilizing new data collection methods (Feinberg, Jones, McDaniel, Liu, & Almeida, 2019; Karberg et al., 2019; Piskernik & Ahnert, 2019), or designing statistical analyses and modeling strategies to address questions from a systemic framework (Feinberg et al., 2019; Lee, Schoppe-Sullivan, Feng, Gerhardt, & Kamp Dush, 2019; Piskernik & Ahnert, 2019; Volling et al., 2019). These examples are not exhaustive of all topics presented and discussed during the meeting because doing so was beyond the scope of the monograph but do provide some first steps in moving research forward. Most of the studies selected for the monograph focus on fathers' direct engagement and behavioral interaction with young children, as this is where much of the developmental research on fathers has focused to date, but many of the examples also offer new means of collecting information about fathers (Fagan et al., 2019; Feinberg et al., 2019; Piskernik & Ahnert, 2019). This second section also ends with an integrative chapter by Cabrera and Volling that introduces several core issues discussed during the meeting of the working group, how each study has addressed several core issues, and what has been learned as a result. In the third and final part of the monograph, Parke and Cookston comment on the state of research on fathers by discussing the implications of the various studies for furthering our understanding of

fathering, while also highlighting some of the broader societal and cultural issues that are still in need of attention.

### Do Fathers Matter for Children's Development?

Before presenting a conceptual framework to understand and study fathering and its impact on child development, one might ask whether a focus on fathering for children's development is warranted. Is there evidence that fathers matter for children's development? Given the burgeoning literature that has accumulated over the decades, it is outside the scope of the monograph to provide a comprehensive review of the literature on the effects of fathering on children's development. Instead, the reader is referred to many books and review chapters currently available (see, for example, Cabrera & Tamis-LeMonda, 2013; Lamb, 2010). Only selected findings are highlighted here to demonstrate the direct effects of fathering on children's development and to exemplify why the study of fathering as a parenting process is essential to an ecological understanding of children's development. For instance, paternal supportiveness and mutual responsiveness in early childhood predicted children's self-regulation, social competence, and lower anxiety (Cabrera, Shannon, & Tamis-LeMonda, 2007; Hastings et al., 2008; Kochanska, Aksan, Prisco, & Adams, 2008). Fathers' sensitivity during challenging play interactions with toddlers predicted children's later attachment representations at age 10 (Grossmann et al., 2002), whereas fathers' negative parenting and intrusive interactions predicted children's aggressive behavior and externalizing behavior problems independently of mothers' negative parenting behaviors (NICHD Early Child Care Research Network [NICHD ECCRN], 2004). Fathers' physical playfulness and rough-and-tumble play (RTP) were related to less aggression with peers, particularly when fathers were more dominant during play interactions (Flanders, Leo, Paquette, Pihl, & Séguin, 2009). Children also expressed more positive affect during play and were more popular with their peers when fathers engaged in RTP (MacDonald & Parke, 1984). Fathers' comforting behaviors and acceptance of children's distress has been linked positively to children's social competence (Gottman, Katz, & Hooven, 1997), whereas fathers' controlling behavior and expressions of negative affect were associated with less emotion regulation and less positive coping strategies (McDowell & Parke, 2005). Paternal supportiveness and sensitivity during play interactions at 24 months predicted mental development and vocabulary at 36 months (Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). Further, paternal vocabulary use in a book-reading session between fathers and their 6-month-olds predicted children's language development at 15 and 36 months (Malin, Cabrera, & Rowe, 2014; Pancsofar, Vernon-Feagans, & Family Life Project Investigators, 2010). Collectively, these studies demonstrate fathers' direct interactions and relationships with their

children across different ages predict children’s social, cognitive, and language development, often independently from mother effects.

### A Developmental Ecological Systems Framework for Understanding Fathering and Children’s Development

The possible roles for fathers are many and complex, but as developmental and family researchers with interests in advancing the conceptualization and measurement of father–child relationships, we must start somewhere. The chapters in this monograph are situated within an ecological systems framework in which fathers are part of a social network of caregivers responsible for children. Other ecological frameworks have been developed to understand how fathers influence children over time and its impact on children’s development (e.g., Cabrera et al., 2014). The current framework derives from ecological conceptual models to highlight the interconnected relationships between and among caregivers, including fathers, mothers, and others and how these relationships among fathers, their children, and the mothers of their children (i.e., mother–father or coparenting relationships)

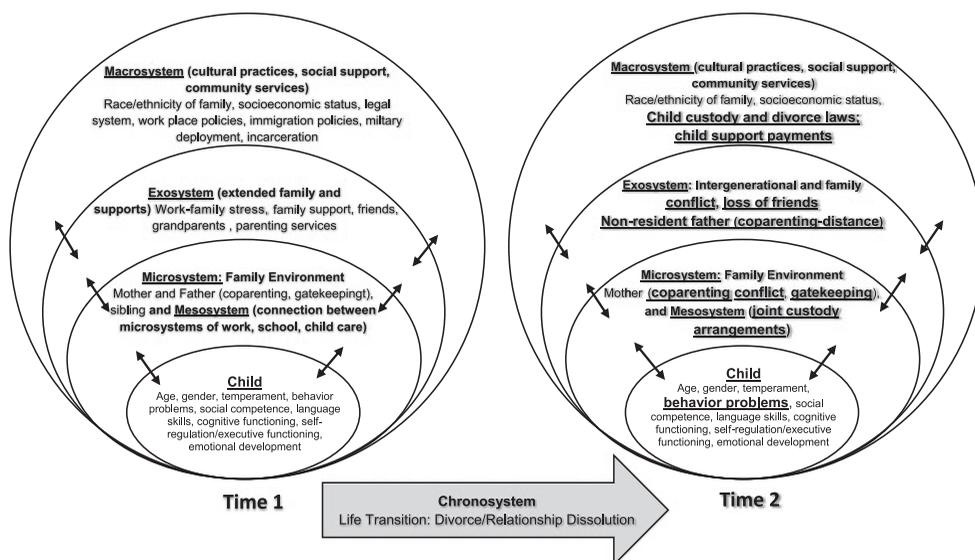


FIGURE 1.—Developmental ecological systems framework for investigating father–child and family relationships.

*Note.* Time 1 represents different systems of the model and examples of the contextual and individual components at each level. Time 2 represents potential changes that could occur in ecological contexts that may affect fathers, families, and children after significant life events, in this case, divorce or dissolution of the partner relationship between mother and father. Terms that have been enlarged, bolded, and underlined at Time 2 reflect those aspects of the ecological systems levels that may be affected, come into play, or change as a result.

unfold over time, as well as the societal factors that come into play to influence these relationships.

Figure 1 provides an illustration of the developmental ecological systems framework proposed here, which combines the ideas and perspectives of several prior scholars including Bronfenbrenner's (1979) ecological theory of human development, family systems theory as applied to developmental and family issues (Cox & Paley, 2003), the determinants of parenting model (Belsky, 1984), and transactional processes of development (Sameroff, 2000). Many of these same components have been integrated into the heuristic model of Cabrera et al. (2014) in their ecological model of father-child relationships. In Figure 1, the child sits in the center of the concentric circles because the existence of children, and what adults "do" with children, is the defining feature of what constitutes parenting for fathers and mothers. Further, children's developmental outcomes are often what is of interest to developmental researchers studying the effects of fathering, and parenting, more generally. How are fathering and father-child relationships related to children's socioemotional, cognitive, and language development? Whether the effects of fathering or the father-child relationship are positive (i.e., facilitates child development) or negative (i.e., undermines child development) determines what conclusions researchers generally draw on how parenting influences children's development, so the child is an essential component of any theory or framework to explain fathering and father-child relationships. For this reason, the child circle includes child characteristics such as the age, gender, and temperament of the child, but also the child development outcomes most often investigated by researchers.

### *Microsystem*

In any ecological systems framework, the *microsystem* refers to the immediate environment surrounding children, and for most children includes the family system, a space that many fathers occupy, but not always (e.g., nonresident fathers). Other microsystems include educational and child-care settings in which children spend a considerable number of hours. For instance, children's peer groups become very important and for parents, the workplace, if they are employed. Because family subsystems (mother-child, father-child, mother-father, sibling-child) are interrelated, the social and dyadic relationships between individuals within the family microsystem are fluid and reciprocal, such that individuals influence other members both directly and indirectly through their social interactions with one another (Cox & Paley, 2003). Bronfenbrenner and Crouter (1983) claimed that human development evolved through progressively more complex interactions between the individual and others in their environment, but to be influential on development, these interactions had to occur on a regular basis and endure over extended periods of time. These interactions were referred to as the *proximal processes* of development, and parent-child interactions and the activities parents do with

children (e.g., book reading, sports, homework) are some of the most enduring proximal processes affecting children's development on a daily basis. Fathers often occupy the most immediate microsystem of the family for children, as demonstrated in Figure 1 (left panel frame), so are active participants in the direct interactions and activities that form the proximal processes of child development. Fathering, therefore, is a proximal process of child development. Figure 1 also shows a second frame (Time 2) underscoring that ecological systems do indeed change, and alter the systemic dynamics and how parents affect children. More information on these changes will be exemplified below while discussing other ecological levels of the model.

### *Mesosystem*

In ecological systems perspectives, the *mesosystem* consists of the interactions between various microsystems (e.g., family and school) because individuals function in multiple systems that are interconnected (e.g., parents and peers), and these various microsystems influence each of the individuals involved, including fathers, mothers, and children. Within the family, parents and children can occupy different subsystems or relationship microsystems, with parents sometimes engaging in direct parent-child interactions and caregiving activities, and other times, spending time romantically with a partner without children, and still other times, working together with the partner as coparents to raise their children. Although many fathers reside with their children in the immediate microsystem (Time 1 in Figure 1), some fathers are nonresident and not living with children on a regular basis for a number of reasons (e.g., divorce, incarceration, military deployment, immigration status, Time 2 in Figure 1). In these situations, fathers may move from the family microsystem to the mesosystem if they reside or are deployed elsewhere, and may be attempting to manage the father-child relationship indirectly through their relationship with the mother of their children. Further changes in the family and ecology of social relationships are also possible in the future when fathers return from military deployment or are released from prison, and must now reintegrate back into the day-to-day experiences of family life (the microsystem). Although developmental researchers can consider fathers absent should they not physically reside in the immediate microsystem of the child, parent-child relationships are not defined solely in terms of physical presence or direct interaction. Out of sight does not mean out of mind for most parents as they go about their day-to-day activities, and the same can probably be said of their children.

### *Exosystem*

The *exosystem* includes settings that may not include the developing child but in which certain events that occur indirectly influence the processes of the immediate environment in which children live. Three exosystems that have been

noted to affect child development have received substantial research attention due to their influence on the family, schools, and children's peer groups. These include the (a) workplace and relations with coworkers, (b) social networks that include extended family members (e.g., grandparents, uncles and aunts, cousins) and family friends; and the (c) neighborhood and community in which the family resides, including playgrounds, shopping centers, and social services. Although the scope of the monograph limits a presentation beyond the immediate family context, plenty of research has demonstrated how the increase in women's labor force participation, and particularly for mothers with infants and young children, has led to an increase in father's participation in child care (e.g., Raley, Bianchi, & Wang, 2012). Mothers often experience more role strain while balancing work and family roles because of their greater responsibility for child care, but fathers' and mothers' experiences in the workplace and work-family conflict affect children's mental health, often through the quality of parent-child relationships and family functioning (Dinh et al., 2017; Vieira, Matias, Ferreira, Lopez, & Matos, 2016).

### *Macrosystem*

The *macrosystem* constitutes the overarching structure and patterns among the micro-, meso-, and exosystems that characterize a particular culture or subcultures. Aspects of the macrosystem include childrearing belief systems, personal and material resources available to parents, health care access, customs and practices of an ethnic group, opportunities for employment and advancement, legal systems and laws (e.g., child custody), socioeconomic status, sociopolitical climate and social policies, the likelihood of exposure to racial and ethnic discrimination, and there are certainly more (see Figure 1). Not all of these aspects of the macrosystem may play out on a daily basis for all parents and children (military deployment, incarceration), but when they are present, understanding how aspects of the macrosystem play out in enhancing or creating barriers to fathering also requires a commitment to uncovering how parents and children are affected under different macrosystem conditions (e.g., race/ethnicity, socioeconomic status, deployment), and how interrelations among the various environmental systems change with changes in the macrosystem infrastructure.

The double-headed arrows in Figure 1 linking the various contextual levels from the micro- to macrosystem reflect the fact that movement between these systems is fluid and not static, and that relations between systems often involve bidirectional, transactional processes that transpire across interconnected systems within and across time (see Sameroff, 2000). The developmental ecological systems model presented here can be applied to understanding fathering in multiple cultural contexts, and one cannot assume that the interrelations between each of the contextual levels of the model will align similarly across cultures and situate fathers in the lives of their children in the same manner. In this regard, the efforts of Promundo and their MenCare campaign are noteworthy. MenCare is a

global fatherhood campaign active in over 45 countries in five continents that promotes men's equal involvement in caregiving and nonviolent fatherhood practices around the world (<https://men-care.org/>). They work at multiple levels (individual, institution, communities, service providers, and social policy) and partner with organizations to create a series of media resources, educational programming, and advocacy initiatives that are usually customized for different countries, languages, and cultural contexts—see also the published report on the *State of the World's Fathers* (Levtov, van der Gaag, Greene, Kaufman, & Barker, 2015).

### *Chronosystem*

Finally, Figure 1 shows how the ecological settings that influence parenting and children's development change over time (Time 1 to Time 2), and demonstrates why we refer to this as the *developmental* ecological systems perspective. The *chronosystem* embraces the passage of time as the environments surrounding individuals change in line with life course events and developmental transitions (e.g., divorce, military deployment, moving, changing jobs, going to university, birth of another child), and, in turn, may alter not only the composition of membership in different levels of the ecology of child development, but also the dynamics in how systems are interrelated and operate to change the proximal processes of development. Time scales may also vary, as Feinberg et al. (2019) will demonstrate by showing what fathers and mothers do on a daily basis may differ over the course of a single week. The chronosystem in Figure 1 is shown not only by the arrow displayed from Time 1 to Time 2 to denote the passage of time, but also by the reconfiguration of different ecological contexts within Time 1 (left frame) and Time 2 (right frame). The ecology of families and children can change profoundly with significant life events that affect fathers' relationships with their children (e.g., divorce or dissolution of the romantic tie between father and mother). The left-hand frame (Time 1) depicts one ecological configuration, in which both parents reside with the child in the family system within the microsystem. After the dissolution of the father–mother relationship, the right-hand frame (Time 2) depicts the new ecological configuration in which the father, in this case, moves and is no longer resident in the household. Potential changes that take on added significance in the lives of parents and children are denoted at Time 2 in bold and underscored. For instance, the dissolution of the father–mother relationship not only results in fathers no longer living with children but perhaps more coparenting conflict, more maternal gatekeeping, loss of friendships with other parents, greater intergenerational conflict with grandparents, involvement in joint custody decisions and so on.

At Time 1, when fathers reside within the family microsystem, they can be involved in direct interactions with children and their partner; most likely on a daily and recurring basis, but once the mother–father relationship has dissolved, as can be seen at Time 2, the ecology of child development has changed, thus altering where fathers reside in relation to their children, how often children interact with their fathers, and what sorts of communications (e.g., phone calls, texting) may now predominate to keep fathers and children connected (see also Fagan et al., 2019). Figure 1 is a heuristic that allows us to demonstrate the complexity of ecological contexts and the individuals in them, how these contexts and the interrelations between them can and do change over time, and how researchers from different disciplines and different countries can have a framework that allows them to determine how best to define and study fathering. Figure 1 shows not only how membership in different systems can change from Time 1 to Time 2, but how other environmental influences come into play over time and play out in determining dynamics between the systems.

Finally, Figure 1 is actually quite simplified by depicting only two time frames because the reality is that multiple frames (Time 3, Time 4, and so on across the life course) could be added to demonstrate how the ecology of child development and fathering continues to change, altering levels of the ecological contexts surrounding children and parents, and, in the end, affecting parents and children differently over time. Additional frames in Figure 1 might show fathers (and mothers) forming new romantic relationships, having additional children with these partners, spending more time with the new family, and less time and more distance from their older children, and on and on. These scenarios are just one of many that play out on a regular basis across the life-course of an individual, alter the ecological contexts that individuals inhabit, and change the social relations and dynamics between different systems and the individuals within those ecological systems. It is these changing ecological configurations and the resulting intersystem dynamics that are what will need to be captured in any developmental framework on fathering, and parenting, in general.

In conclusion, Palkovitz (2002) once noted that “fathering, at its core, entails relationships” (p. 121). Relationships endure beyond the immediate physical and social environment, and developmental research needs to address how fathers attempt to maintain those relationships with the child and the child’s mother, from a distance if necessary, and how the interrelated dynamics of the ecology of child development can be altered with a single life event (e.g., the birth of a new baby with another partner for either mother or father). Understanding fathering is about understanding the relationships between people: fathers, mothers, children, extended family, neighbors, friends, and coworkers. As a discipline, we must begin to acknowledge the complexity of children’s lives and incorporate contexts beyond dyadic relationship perspectives that only include one parent who has been designated as primary in the life of a child, usually the mother, and commit

to understanding how the ecology of children's lives change, and what the circumstances are that bring fathers in and take them out of the lives of their children.

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## II. New Fathers' and Mothers' Daily Stressors and Resources Influence Parent Adjustment and Family Relationships

*Mark E. Feinberg, Damon E. Jones, Brandon T. McDaniel, Siwei Liu, and David Almeida*

**Abstract** To understand new fathers' experiences and well-being, we examine links between fathers and their partners' replenishing and stressful daily experiences—exercise, sleep, work, chores, general stress, and parenting stress—and their own and their partners' well-being and family relations. Fathers and mothers of 10-month-old infants ( $N = 143/140$  mothers/fathers) in the United States reported on daily experiences for 8 consecutive days. Results of multilevel models indicated that more replenishing and fewer stressful daily experiences were generally linked to more parent happiness, better couple relations, and greater closeness with the infant. Several gender differences also emerged that may reflect different stress and coping processes or different social roles for mothers and fathers; most striking was that on days that fathers spent more time on chores, mothers reported greater couple closeness but fathers reported more arguments. This exploration of new parents' daily experiences demonstrates the value of the method to generate intervention-relevant insights, as well as the importance of examining fathers' (and mothers') experiences in the context of couple-level dynamics.

The transition to parenthood and the early years of parenting are uniquely stressful for fathers as well as mothers, both as individuals and as a couple (Bleidorn et al., 2016; Nelson, Kushlev, & Lyubomirsky, 2014). Although much research has focused on mothers' well-being or couple relationship quality, some work has demonstrated that men too experience declines in well-being during the transition to fatherhood (Condon, Corkindale, & Boyce, 2004; Matthey, Barnett, Ungerer, & Waters, 2000). Although men do not experience the enormous physical changes of pregnancy and birth, they also receive less personal and institutional support around the transition to parenthood than mothers (Deave & Johnson, 2008). Levels of daily chores, stress, depression, and couple conflict are elevated for new parents, whereas levels of relationship satisfaction, fulfilling sexual relations, sleep, and joint leisure time decrease (Maas, McDaniel, Feinberg,

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Corresponding author: Mark E. Feinberg, Edna Bennett Pierce Prevention Research Center, The Pennsylvania State University, 300 Biobehavioral Health Building, University Park, PA 16802, email: MEF11@psu.edu

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& Jones, 2018; McDaniel & Teti, 2012). Such changes can undermine parents' mental health and compromise warm and good-enough parenting (Feinberg, 2003; McDaniel & Teti, 2012). Ironically, this high-stress period for parents coincides with the period of greatest vulnerability of young children, when the provision of a contingent, consistent, and warm family environment has the greatest influence on development and long-term health.

To understand better how to support new fathers (Luhmann, Murdoch, & Hawkley, 2015), we sought to understand the ways that daily supports and stressors affect new parents' happiness, relations with each other, and parenting (Lang, Schoppe-Sullivan, Kotila, & Kamp Dush, 2013). Our intention was to better understand fathers' experiences by utilizing a family systems framework highlighting the interrelations of family members' experiences (Minuchin, 1985), a theme throughout many chapters of this monograph. Research (Feinberg, 2002, 2003) demonstrates the ways that one parent's well-being and parenting is deeply embedded in the dynamics of the interparental relationship (Le, McDaniel, Leavitt, & Feinberg, 2016). For example, fathers' parenting is particularly sensitive to influence from mothers and the coparenting relationship (Lang et al., 2013); conversely, mothers' personal well-being—that is, life satisfaction and mental health—are highly influenced by fathers' emotional support and instrumental contributions to parenting (Katz-Wise, Priess, & Hyde, 2010). Thus, we investigated both fathers' and mothers' daily experiences and the mutual influences of one partner on the other.

Most family systems research focuses on the quality of family interaction, such as relationship satisfaction or conflict and warmth (Erel & Burman, 1995). However, over the last decade, scholars have devoted increasing attention to the daily experiences of family members by using daily diary methods. A major premise for research on daily experiences is that standard longitudinal study designs, typically taking assessments on an annual basis, do not capture the fluctuations and dynamics occurring on shorter time scales (Laurenceau & Bolger, 2005). In fact, there is often so much day-to-day fluctuation that identifying how happy, well-adjusted, or stressed a person is depends about as much on a particular day the question is asked as on the particular person sampled. Some studies have found that the majority of variability in relationship feelings such as couple conflict or coparenting quality is due to daily fluctuation (Totenhagen, Butler, Curran, & Serido, 2016; McDaniel, Teti, & Feinberg, 2017). Daily diary studies illuminating the microprocesses of family member experiences may be especially useful in understanding periods of stress. By studying daily stressors and resources (i.e., positive, regenerative, or supportive experiences), we can examine how daily experiences may accumulate over time leading to changes in individual functioning.

Thus, illustrating one theme of this monograph—applying new data collection and analysis methods to father-related research—we investigated the daily fluctuations in well-being and relationships of coresidential parents raising a first child. We examine parents' time use—including chores, sleep, exercise, and time spent with a distressed infant—as these activities may have implications

for parents' well-being, and consequently their ability to engage in warm relations with both partner and child. An important first question is to simply understand daily fluctuations in new fathers' and mothers' sense of well-being, the partner relationship, and warmth to their child. Specifically, do parents of infants have stable levels of daily stress, well-being, and positive family relationships? Or, given the difficulties of early parenting such as lack of sleep and infant dependency, are parents' experiences highly variable across days?

A second general question is whether, and the degree to which, both replenishing and stressful daily experiences influence well-being and family relationships. One prior study reported significant within-person (WP) associations between daily fluctuations in parenting stress and daily fluctuations in coparenting quality for both mothers and fathers (McDaniel et al., 2017). Here, we assessed the links between daily stressors and well-being by examining the (WP) association between the relative level of stress experienced in a day (controlling for a parents' average report across days) and well-being on the same day.

This study also illustrates a second theme in this monograph—testing specific theories about fathers' relations with family members: Consistent with a stress and coping framework, we sought to understand whether the supportive or detrimental effects of daily experiences accumulate over days (Almeida, 2005). Daily time-use data allows one to estimate a multilevel model that distinguishes WP associations (i.e., effects of stress on a particular day) from between-person (BP) associations (i.e., effects of stress averaged across days). As an analogy, consider a child in a food insecure family. The child will be hungrier on days when food is scarce, but the *accumulation* of days without sufficient food can have a different longer-term impact on development due to malnourishment. Similarly, daily stress may be associated with well-being on the same day, but daily stress may also accumulate across days and yield different impacts. In this way, examining daily and average associations of stress with adjustment may illuminate distinctions between temporary and chronic stress processes.

One reason for focusing on the distinction between daily and longer-term accumulation of stress is that individuals may manage, or *cope* with, daily and accumulated stress in different ways. Management of daily stressors may include planning to avoid exposure (anticipation) or contingent response (problem-solving, soothing). On a longer time frame, coping behaviors can include, for example, a weekly couple problem-solving meeting; or a regenerative experience such as regular massage, therapy, or religious participation.

To understand the factors that influence parents' well-being, we utilized a framework in which daily experiences consist of (a) positive, resource-building experiences and (b) negative, stress-inducing experiences. Resource-building experiences included the amount of time parents engaged in physical exercise and sleep. New parents experience sleep disruption, which leads to irritability, negative mood, and relationship strains (McDaniel & Teti, 2012; Medina, Lederhos, & Lillis, 2009; Yorgason et al., 2018). Similarly, physical activity declines across pregnancy and parenthood (Rhodes et al., 2014). Because physical activity

is associated with enhanced mood (Penedo & Dahn, 2005), we expected it to be associated with better parent well-being and family relationships.

Negative, stress-inducing experiences included the time devoted to paid work, household chores, and exposure to the infant when distressed. We also examined parents' report of other stressful daily experiences. As early parenthood is, overall, a somewhat stressful period due to the demands relating to child care and responsibilities (Beckerman, van Berkel, Mesman, & Alink, 2017; Penedo & Dahn, 2005), we expected that more time spent at work, on home chores, or with a distressed infant should be related to decreased parental well-being, greater partner relationship strain, and compromised parenting (Nelson, Boyer, Villarreal, & Smith, 2017; Sears, Repetti, Robles, & Reynolds, 2016; Yavorsky, Kamp Dush, & Schoppe-Sullivan, 2015).

### Aims and Hypotheses

In the language of the developmental ecological systems model described in Chapter I, we examined daily chronosystem processes in the child's microsystem (parents and parenting), including the impact of exosystem factors such as work and extrafamilial relations (Volling & Cabrera, 2019). The first aim was to gain a better understanding of the daily experiences of fathers and mothers of 10-month-old infants. We examined the proportion of overall variability of each measured experience—exercise, sleep, work, chores, general stress, and parenting stress—due to daily (WP) and overall (BP) variability. Our second aim was to understand how daily experiences are related to parent adjustment—represented here by parents' individual well-being and the perceived quality of relationships with the partner and child. Given that mothers' and fathers' experiences and parenting can differ (Karberg et al., 2019), and based on mothers' higher level of vulnerability during the transition to parenthood, we expected that, compared to fathers', mothers' stressful and restorative experiences would be more consequential for their own adjustment (Leavitt, McDaniel, Maas, & Feinberg, 2017). We also hypothesized that for both parents, amount of time spent at work, on home chores, or with a distressed infant—as well as overall greater daily stress—would be related to decreased parental adjustment.

### Method

#### *Participants*

Fathers and mothers were recruited from 399 couples participating in the second randomized trial of Family Foundations (Feinberg et al., 2016) to form the substudy of daily experiences. As the daily diary substudy was funded and initiated after the main trial had begun, we invited a total of 265 couples from

the main study to participate in the daily diary component. Both partners from 202 couples agreed to participate in the two 8-day bursts of daily phone interviews—one during pregnancy and one at 10 months postpartum. Of numerous pretest variables examined, attrition analyses revealed only one significant difference between the full sample and those who participated in the daily diary (average maternal age differed by less than 1 year). In total, 143 mothers and 140 fathers, approximately 70% of the 202 mothers and fathers who participated in the prenatal daily diary burst, provided data at the 10 months postpartum daily diary burst. The majority of substudy parents were non-Hispanic White (88% of females; 87% of males) and 93% were married. Over half (56%) were living in central Pennsylvania; the others lived in mid-Atlantic states or Texas. The median income was \$85,000 ( $SD = \$37,153$ ) and mean years of education was 15.9 ( $SD = 1.7$ ) for mothers and 15.6 ( $SD = 1.9$ ) for fathers. The average age was 29.1 ( $SD = 4.5$ ) and 31.0 ( $SD = 5.6$ ), for mothers and fathers, respectively.

### *Procedures*

Data for this study come from the burst of daily time use data collected at 10 months postpartum. Daily telephone interviews were conducted in the evening, inquiring about experiences in the past 24 hr. Each partner was interviewed separately and asked to be in a room alone during the call. Couples were compensated \$75 for the postnatal measurement burst.

### *Measures*

#### *Daily Time Use*

During each telephone interview, parents were asked for an estimate of time spent in sleeping the night before; paid work, volunteer activities, or educational experiences (whether at home, work, or elsewhere, including travel time); household chores (such as housework and yard work); and physical exercise (e.g., walking, jogging, or bicycling).

#### *Daily Stressors*

Daily stressors were measured with two variables. The first asked parents to indicate on a 4-point scale (1 = *none* to 4 = *a lot*), how much they experienced “fussing, crying, waking at night or any other of your child’s behaviors as stressful.” A second variable represented daily stress and was created by summing the number of daily stressors each respondent endorsed from a list of five taken from the Daily Inventory of Stressful Events (Almeida, 2005): (a) an argument with or (b) avoidance of a potential argument with the partner, (c) a stressful event at work or school; (d) a problem experienced by a friend or relative, or (e) any other event or problem considered stressful.

*Parental Well-Being*

Daily well-being was measured with a single item asking respondents to rate how happy they were with their lives on the day of the interview, with a 10-point response scale (1 = *not at all* to 10 = *extremely happy*).

*Couple Relationship Quality*

On each day, parents were asked two questions to assess the partner relationship. Relationship closeness was adapted from a daily measure (Dumas, Margolin, & John, 2003), asking individuals how intimate or connected they felt with their partners using a 5-point scale ranging from 1 = *not at all* to 5 = *extremely*. Second, an item asked how many arguments the respondent had had with their partner that day.

*Relationship With the Infant*

One item assessed how emotionally close parents felt to their child, and another assessed how physically affectionate they had been with their child that day using a 5-point scale (1 = *not at all* to 5 = *extremely*).

*Plan of Analysis*

Multilevel regression models (MLM) were employed to analyze study outcomes, accommodating data where multiple outcomes from 8 consecutive days were nested within each person (2-level MLM). For assessing whether an argument occurred during the day (yes–no response) we used multilevel logistic regression. All analyses were carried out in SAS version 9.4 using PROC MIXED or GLIMMIX. First, we used the intraclass correlation (ICC) to assess the proportion of overall variability for each measured experience due to daily (WP) variability and to overall trait (BP) variability. Second, we examined how each parent’s daily experiences influenced their own adjustment and that of the partner with multilevel models designed to distinguish between average levels of a variable (across the 8-day period) and daily fluctuations (a daily deviation score from the individual’s average). Because the independent and dependent variable scores are collected on the same day, these analyses assess covariation rather than causal influence. We utilized separate regression models to examine each outcome and predictor combination. Models were carried out separately for mother and father outcomes in order to explore differences in *patterns* between parents without multiple interaction terms that would challenge power for our sample size and lead to results that might be difficult to interpret. In each model, we included four predictors: Person-average (BP) and person-daily (WP) values of the predictors for both parents. All models controlled for randomization into the parent study’s intervention or control condition. Random intercepts were specified to represent variation across respondents.

TABLE 1  
 MEANS (*SD*) AND INTRACLASS CORRELATIONS (ICCs; THE PROPORTION OF BETWEEN-PERSON VARIANCE)  
 FOR DAILY EXPERIENCES

Daily Experience Predictors	Means ( <i>SD</i> )		ICCs	
	Mothers	Fathers	Mothers	Fathers
Well-being (life happiness)	7.73 (1.04)	7.70 (1.01)	.65	.63
Couple intimacy	3.24 (1.10)	3.14 (1.10)	.50	.48
Arguments with partner (1 = yes)	0.06 (0.23)	0.04 (0.19)	.06	.08
Closeness with child	4.27 (0.86)	3.92 (1.03)	.47	.50
Physical affection with child	4.40 (0.75)	3.72 (1.07)	.43	.45
Physical activity (1 = yes)	0.29 (0.45)	0.41 (0.49)	.38	.60
Work (hr)	5.16 (4.98)	7.09 (4.32)	.34	.06
Chores (hr)	1.86 (1.68)	1.44 (1.25)	.33	.28
Sleep (hr)	7.10 (1.35)	6.87 (1.28)	.24	.24
Stressors (sum score)	0.29 (0.55)	0.22 (0.48)	.19	.18
Exposure to child distress	1.55 (0.78)	1.39 (0.70)	.36	.34

*Note.* *SD* = standard deviations.

## Results

Descriptive information is provided in Table 1. Higher ICCs reflect a greater proportion of variability at the BP level and less at the WP (daily fluctuation) level. ICCs for mothers and fathers are similar except for physical activity and work hours. Tables 2 and 3 show results of the multilevel models using the WP and BP daily experience variables to predict outcomes. Results are summarized below.

### *Replenishing, Supportive Daily Experiences*

#### *Physical Activity*

At the BP level, mothers' average physical activity was positively associated with fathers' reports of couple intimacy (and, at a trend level of  $p = .06$ , for mothers' reports of couple intimacy). In other words, in families where mothers exercised on average more than other mothers, there was a high level of couple intimacy. At the WP level, the more physical activity a mother reported on a particular day relative to her average, the more arguments both parents reported on that day. Mothers' daily physical activity (WP) was also linked with mothers' physical affection with their children.

For fathers at the BP level, we found no linkages between average physical activity and any outcomes. At the WP level, physical activity by fathers was positively linked with mothers' life happiness and both parents' reports of intimacy. That is, on days when fathers reported more physical activity, both parents reported more intimacy and mothers reported being happier. Daily physical activity by fathers was negatively linked to whether couple arguments occurred.

TABLE 2  
 COEFFICIENTS (SE) FOR REGRESSION MODELS EXAMINING THE EFFECTS ON PARENTAL WELL-BEING AND PARTNER RELATIONSHIP QUALITY

Outcomes Predictors	Parent Well-Being		Couple Intimacy		Arguments With Partner	
	Mother	Father	Mother	Father	Mother	Father
Physical activity						
Mother BP	.420 (.286)	.165 (.313)	.435 (.232)	.491 (.225)*	-.312 (.465)	-.244 (.520)
Mother WP	.021 (.052)	.040 (.054)	.025 (.066)	.039 (.064)	.605 (.277)*	.748 (.293)**
Father BP	.134 (.258)	.309 (.282)	-.120 (.209)	.033 (.203)	-.109 (.410)	-.370 (.472)
Father WP	.166 (.050)**	.081 (.053)	.293 (.063)**	.130 (.062)*	-.234 (.277)	-.591 (.297)*
Work (hr)						
Mother BP	-.039 (.025)	-.009 (.026)	-.017 (.020)	-.049 (.019)*	-.060 (.040)	.001 (.046)
Mother WP	-.022 (.006)*	.002 (.006)	-.017 (.007)*	-.021 (.007)**	-.009 (.033)	-.023 (.033)
Father BP	.059 (.040)	.128 (.043)**	-.016 (.033)	.037 (.032)	-.074 (.065)	-.129 (.076)
Father WP	.001 (.005)	-.009 (.006)	-.032 (.007)**	-.029 (.006)**	-.027 (.028)	-.053 (.029)
Chores (hr)						
Mother BP	.054 (.078)	.193 (.084)*	.091 (.063)	.122 (.061)*	.033 (.122)	-.194 (.145)
Mother WP	.019 (.016)	.003 (.017)	.025 (.020)	.042 (.020)*	.109 (.082)	.010 (.092)
Father BP	-.050 (.088)	.026 (.095)	-.078 (.073)	.072 (.069)	.031 (.156)	.101 (.167)
Father WP	-.002 (.017)	.007 (.018)	.050 (.022)*	.001 (.021)	.079 (.086)	.214 (.085)**
Sleep (hr)						
Mother BP	.215 (.090)*	-.009 (.098)	.062 (.075)	.013 (.071)	-.014 (.144)	-.072 (.162)
Mother WP	.048 (.016)*	-.003 (.018)	.022 (.021)	.022 (.020)	-.078 (.090)	.014 (.095)
Father BP	-.168 (.106)	-.303 (.114)**	-.031 (.087)	-.263 (.083)**	.202 (.168)	.218 (.193)
Father WP	.030 (.019)	.010 (.020)	.089 (.024)**	.036 (.023)	.027 (.105)	.044 (.110)
Stressors (sum) <sup>a</sup>						
Mother BP	-.559 (.236)*	-.597 (.254)*	-.006 (.199)	-.152 (.193)		
Mother WP	-.180 (.037)**	-.030 (.039)	-.146 (.048)**	-.196 (.046)**		
Father BP	-.166 (.241)	-.384 (.261)	-.016 (.204)	.004 (.197)		
Father WP	-.106 (.037)*	-.181 (.039)**	-.142 (.048)**	-.134 (.047)**		

(Continued)

TABLE 2. (Continued)

Outcomes Predictors	Parent Well-Being		Couple Intimacy		Arguments With Partner	
	Mother	Father	Mother	Father	Mother	Father
Exposure to child distress						
Mother BP	-.680 (.164)**	-.473 (.183)**	-.189 (.141)	-.064 (.137)	.829 (.256)**	.163 (.196)
Mother WP	-.026 (.036)	-.007 (.038)	-.122 (.047)**	.007 (.046)	.100 (.188)	.564 (.294)
Father BP	.166 (.184)	-.126 (.205)	-.005 (.158)	-.136 (.153)	-.324 (.308)	-.078 (.339)
Father WP	.005 (.039)	.008 (.042)	.060 (.051)	.050 (.050)	.149 (.212)	.386 (.213)

Note. BP = between-person; WP = within person. Unstandardized multilevel regression coefficients (fixed effects) presented in all cases except for Arguments outcome where multilevel logistic regression was used (logit coefficients).

<sup>a</sup>Linkages between stressors and daily arguments was not analyzed, given arguments were part of the total stress score.

\*\* $p < .05$ , \*\*\* $p < .01$ .

TABLE 3  
COEFFICIENTS (*SE*) FOR EFFECTS OF PARENTS' DAILY EXPERIENCES ON INTERACTION QUALITY WITH CHILD

Outcomes Predictors	Closeness		Physical Affection	
	Mother	Father	Mother	Father
Physical activity				
Mother BP	.297 (.192)	.271 (.223)	.144 (.184)	.169 (.223)
Mother WP	.037 (.049)	-.036 (.053)	.128 (.049)*	.024 (.058)
Father BP	.103 (.173)	.147 (.200)	.028 (.165)	.054 (.201)
Father WP	.081 (.047)	.060 (.052)	.015 (.048)	-.011 (.057)
Work (hr)				
Mother BP	-.030 (.017)	.016 (.019)	-.025 (.016)	.029 (.019)
Mother WP	-.043 (.005)**	.001 (.006)	-.034 (.006)**	.013 (.007)*
Father BP	-.023 (.027)	-.003 (.032)	-.014 (.026)	-.008 (.031)
Father WP	.007 (.005)	-.023 (.005)**	.002 (.005)	-.031 (.006)**
Chores (hr)				
Mother BP	.117 (.052)*	-.004 (.061)	.093 (.049)	.000 (.060)
Mother WP	.080 (.015)**	.004 (.017)	.057 (.015)**	.015 (.018)
Father BP	-.039 (.060)	.026 (.069)	-.042 (.057)	.100 (.069)
Father WP	.002 (.016)	.015 (.018)	.000 (.016)	.024 (.019)
Sleep (hr)				
Mother BP	.030 (.062)	-.047 (.070)	-.029 (.059)	-.103 (.071)
Mother WP	.047 (.016)**	-.007 (.017)	.047 (.016)**	-.016 (.019)
Father BP	-.053 (.072)	-.209 (.082)**	.016 (.069)	-.067 (.082)
Father WP	.038 (.018)*	.046 (.020)*	.045 (.018)**	.045 (.022)*
Stressors (sum score)				
Mother BP	-.202 (.163)	.036 (.189)	-.082 (.155)	.146 (.188)
Mother WP	.006 (.036)	-.040 (.039)	-.025 (.036)	-.057 (.043)
Father BP	.216 (.167)	.025 (.194)	.193 (.159)	-.047 (.193)
Father WP	.037 (.036)	.068 (.040)	.047 (.037)	.041 (.043)
Exposure to child distress				
Mother BP	-.364 (.112)**	-.189 (.130)	-.289 (.107)**	-.187 (.131)
Mother WP	-.099 (.035)**	-.011 (.038)	-.060 (.035)	-.015 (.042)
Father BP	-.072 (.125)	-.330 (.146)*	-.115 (.120)	-.272 (.146)
Father WP	.060 (.038)	-.013 (.042)	.010 (.038)	.087 (.045)

Note. BP = between-person; WP = within person.

\* $p < .05$  \*\* $p < .10$ .

### Sleep

Among mothers, both BP and WP levels of sleep were positively linked with mothers' reports of life happiness. At the WP level, sleep was positively associated with mothers' closeness and physical affection with their children. Results indicated a contrasting pattern for fathers' sleep. BP levels of fathers' sleep were negatively linked to fathers' reports of happiness, couple intimacy, and closeness to the child. In contrast, at the WP level, fathers' sleep positively predicted mothers' reports of couple intimacy, and both parents' reports of closeness and physical affection with their child.

## *Stressful Daily Experiences*

### *Work Hours*

Only one finding emerged for work at the BP level: Average report of fathers' work hours was positively linked to fathers' reports of well-being. At the WP level, mothers' and fathers' time at work predicted mother and father reports (respectively) of child closeness and child physical affection, as well as both parents' reports of intimacy. Mother work hours were negatively linked with their daily happiness but positively linked with fathers' reports of child physical affection.

### *Daily Chores*

The amount of time spent on daily chores was significantly linked to all five outcomes in a positive direction. At the BP level, mothers' time spent on chores among mothers was positively linked with fathers' reports of life happiness and couple intimacy, as well as mothers' reports of closeness with the child. At the WP level, mothers' time in chores was positively linked with fathers' reports of couple intimacy and mothers' reports of closeness and physical affection with the child. Fathers' reports of time spent on chores did not predict any outcomes at the BP level. At the WP level, fathers' time in chores was linked with mothers' reports of more couple intimacy as well as with fathers' reports of whether arguments occurred.

### *Stress*

The parent stressors sum score was negatively linked to both parents' reports of life happiness as well as couple intimacy. BP levels of mothers' stress negatively predicted both parents' life happiness. WP levels of mothers' stressors negatively predicted mothers' life happiness and both parents' reports of couple intimacy. BP levels of stress among fathers were not significantly linked with any outcomes. At the WP level, father-reported stressors were negatively linked with both parents' reports of life happiness and couple intimacy. No significant links were found between stress and parents' reports of child closeness or affection (the outcome of daily arguments was not analyzed, given this question was a part of the total stress score).

### *Exposure to Child Distress*

Mothers' BP levels of child distress exposure were linked negatively with both parents' life happiness, negatively with mothers' child closeness and physical affection, and positively with mothers' reports of arguments. At the WP level, mothers' reports of child distress exposure negatively predicted of mothers' reports of couple intimacy, closeness with their children, and (at  $p = .08$ ) physical affection toward the child. At the BP level, father reports of child distress exposure were negatively linked to fathers' reports of child closeness. We did not find any significant linkages for fathers at WP level.

## Discussion

In this study, we explored the relations of fathers' and their partners' daily supportive and stressful experiences to their daily well-being and perceptions of relations with their partners and children. This work applied a relatively new method, as called for by Parke and Cookston (2019), to examine how daily experiences of fathers and mothers were related to three important dimensions of the childrearing environment: parental well-being, interparental relations (Lee et al., 2019), and parent-child closeness (Fagan et al., 2019). The findings demonstrated both similarities and differences in the pattern of mothers' and fathers' daily experiences and associations with parent adjustment, and that understanding these processes holds promise for optimizing support for families with young children. These insights would not have emerged without measuring parent and family features with a daily diary methodology. The measurement-burst design using daily diaries allows scholars to break new ground in understanding the processes between- and within-families on a time scale intermediate between second-to-second interaction and year-to-year trajectories. The daily time diaries take the time scale of minutes and hours into consideration and allow us to view the ways that daily experiences unfold to affect the parental and relationship functioning.

Consistent with the prior research (McDaniel et al., 2017; Totenhagen et al., 2016), there was considerable variability from day-to-day in both fathers' and mothers' activities and relationships. Roughly half the overall variability in daily experiences over the 8 days, 10 months after the birth of an infant, was due to day-to-day fluctuations "within" individuals, with the other half due to across-day averages between individuals.

There are practical implications here for efforts to support parents' well-being and family relationships. First, clinicians and service providers should be aware that temporal variability is high, and that making diagnostic or prescriptive assessments based on a single meeting may have low sensitivity/specificity test characteristics. Second, substantial daily variability in the experience itself may become a chronic stressor over longer periods of time. Third, consistent with a strengths-based approach (Walsh, 2003), clinicians can offer the message to most parents that they already have the tools needed to be successful as demonstrated on some days.

### *Daily Replenishing Experiences*

With respect to the supportive, resource-enhancing factors of physical activity and sleep, there was partial support for our hypothesis that more time spent in these activities, both on average across days and on any given day, was linked to more positive parental well-being, better couple relations, and greater closeness with the infant. For example, average mother physical

activity (i.e., the BP effect) was linked to greater couple intimacy. Daily (within person) fluctuations also mattered: On days that fathers exercised more than usual, one or both parents reported a reduced conflict and more warmth with the partner, as well as greater happiness. On days when either parent slept more than usual, one or both parents reported greater closeness and physical affection with their child. Given the reduced overall level of sleep of new parents, such days of better than average sleep duration likely reduced irritability, allowing for greater patience and closeness with their child. Greater sleep thus increased the self-regulatory resources available to parents to manage interactions with their children (Barber & Munz, 2010; Barber, Munz, Bagsby, & Powell, 2010). However, it is also possible that increased rest came about on days where there were diminished child-rearing demands on parents in the first place.

There were indications that mothers were more sensitive to both parents' exercise and sleep than were fathers. For example, mothers' happiness was linked to both fathers' average exercise and mothers' average sleep, and mothers' physical child affection was associated with mothers' average exercise. In terms of daily fluctuations, mothers were happier on days they slept more than usual and they reported more couple intimacy on days that their partner did. These results may be due to the heightened stress and precarious nature of new mothers' well-being compared with fathers; that is, new mothers' happiness may be uniquely sensitive to the replenishing effects of exercise and sleep and, as it translates into family behavior, of their partner as well.

However, two findings did not support our hypothesis that replenishing experiences promote better adjustment. The first has to do with parents' physical exercise and illustrates an important point for this monograph: Understanding fathers' experiences and behavior cannot be fully achieved without an appreciation of the transactional context of family life—most critically the relations with the coparent. On days when fathers exercised more than usual, there was a lower likelihood of an argument on that day, as we had expected, perhaps due to a father's improved mood. Thus, the mother may benefit from a father's improved mood and there is a lower likelihood for couple conflict. Even though mothers tend to perform the majority of child care, even in dual-earner couples (Kamp Dush, Yavorsky, & Schoppe-Sullivan, 2018), mothers may consider the balance between benefits arising from releasing a father from child care or other duties to allow him to exercise versus her own needs for sleep, exercise, and replenishing activities.

However, counter to our hypothesis, on days when mothers exercised more than usual, both parents reported an argument was more likely to have occurred the same day. As mothers tend to perform the majority of child care (Kamp Dush et al., 2018), even in dual-earner couples, spending more time on exercise may require fathers to contribute more time to child care than usual. Gender-related attitudes may play a role such that mothers, but not fathers, see themselves as the predominant or “backstop” caregiver and thus

are willing to fill in when asked. Thus, fathers may resist or feel resentful when mothers spend more time than usual on their own needs such as exercise, leading to arguments. However, it is also possible that the extra time spent with the child is stressful for fathers, leading to reduced self-regulatory control and as a result increased interpersonal strains such as arguments with the partner. Although future research may clarify the dynamics involved, in either case, couples may benefit from coparenting arrangements in which a degree of planning for each parents' exercise eliminates strains or burdens that occur on days when mothers exercise more.

The second exception to the pattern of findings concerns sleep. As expected, the more fathers had slept the night before, the better were fathers' relationships that day (i.e., couple intimacy and child closeness). However, fathers who reported sleeping more *on average* reported reduced overall individual well-being and closeness with partner and child. Our post hoc interpretation is that it may be primarily depressed fathers who spend, on average, more time sleeping. An interesting question is why mothers' average sleep (across the 8 days) was associated with their greater well-being, in contrast to fathers. It may be that greater responsibility for child care leaves mothers less flexibility in their sleep time. For example, depressed mothers may not have the opportunity to spend more time in bed in the mornings.

#### *Daily Stressors*

In contrast to replenishing activities, we found that in general, parents' time spent at work and in household chores, overall daily stress, and exposure to infant distress was negatively linked with individual well-being and partner/child relationship quality as expected. For example, we found that daily fluctuation in overall reported stress was linked to well-being and couple intimacy on the same day, as expected for both parents. However, at the BP level, only mothers' average reports of stress were linked to mothers' and fathers' well-being. Thus, the disruptive *effects* of daily stress appeared to accumulate over time for mothers. The difference between parents here may be related to a number of factors, including a biological or socially influenced difference between mothers and fathers in coping and repair from stress. There may also be a feedback loop such that new mothers' higher overall levels of stress and depression compared with fathers—due in part to greater time demands, role expectations, and/or the biologically demanding experiences of pregnancy, childbirth, and breastfeeding—make it more difficult for mothers to completely repair daily stress experiences. In essence, mothers' greater levels of stress and difficulty may make the repair from daily stress more difficult, leading to even higher overall levels of stress.

Exposure to infant distress also had substantially different implications for mothers and fathers. Daily fluctuations in exposure to a distressed infant was not associated with father's adjustment but was linked to mother's lower level of well-being and closeness with the infant on the same day. Average

exposure across days was linked for fathers with diminished father closeness with the infant; for mothers, such exposure was linked to lower levels of *both* parents' well-being as well as mothers' closeness and physical affection with the infant. The greater daily sensitivity of mothers to infant distress compared to fathers, and the broader impact of average exposure over time for mothers' exposure, may be linked both to their greater vulnerability mentioned above. In addition, mothers spend more time with infants than fathers on average and thus are likely exposed to a higher level of infant distress. It may be that such an overall higher level of exposure increases mothers' sensitivity to the disruptive daily impact on infant distress.

The two exceptions to our findings that stressful experiences were linked to decreased parent adjustment yield potentially interesting insights about family dynamics. First, results indicated that at the average (BP) level, fathers who spent more time at work were happier—even though working more on a particular day (the WP level) has negative implications for father adjustment. As above, gender role attitudes may play a role here: Fathers, who tend to see a major part of their family role as being the main breadwinner, may feel unhappy about their life when working few hours overall.

Second, fluctuations in mothers' time spent on household chores had no implications for either parent. However, on days that fathers spent more time on chores, fathers reported more arguments, whereas mothers reported more couple intimacy. There is substantial literature linking the division of labor, including fathers' contributions, with couple conflict and relationship intimacy around the transition to parenthood (Carlson, Hanson, & Fitzroy, 2016; Newkirk, Perry-Jenkins, & Sayer, 2017). Arguments on days that fathers spent more time on chores may come about for several reasons, such as a father's resistance to a mother's a request for greater father assistance with chores, fathers' resentment after having spent time on chores, or because mothers are unhappy with how fathers performed chores. The broader point here is that the meaning and implications of fathers' time spent on chores is not located solely in fathers' own experiences: Whether fathers continue to spend more time on chores may depend on the balance of positive (mother perceives more intimacy) and negative (fathers see more arguments) reinforcements.

### *Limitations*

There are certain limitations that should be noted. All data were based on self-report so were subject to reporter bias. The sample was also more likely to be married, Caucasian, and have above-average household income, so results may not generalize to other populations. The analyses were exploratory and the study focused on the prediction of outcomes separately for mothers and fathers. Other approaches examining specific hypotheses may utilize different analytic techniques (such as using actor-partner interdependence modeling). Because measures were obtained at only one

point in time, we could not determine causality. Finally, the generalizability of this study does not extend to single parents outside of a mother–father, coresidential, coparenting relationship. However, relatively few parents raise an infant outside of a dyadic, coparental relationship. Even though nonmarital childbearing has increased over the past half-century, 85% or more of U.S. parents have a child within a committed, coresidential couple relationship (Child Trends Databank, 2015). The majority of the remaining new parents are in romantic relationships and hope to reside together in the future (McLanahan & Beck, 2010).

### *Future Directions*

This initial study of new parents' daily experiences yielded new and potentially important insights into the associations of daily experiences with parents' daily well-being and family relationships. However, future work should improve on this study's ability to examine gender differences by recruiting larger samples and/or collecting additional days of data. Such improvements would allow for wholesome multilevel modeling of both parents' experiences and adjustment in the same model—along with accounting for days within measurement bursts—that would facilitate significance testing. Moreover, future work should examine the influence of daily family dynamics on global measures of parent and child adjustment. Further, future research should examine how individual and couple-level coping processes influence the links between stressful experiences and daily adjustment. Finally, future research should explore the interactive effects among daily experiences; for example, assessing the consequences of exposure to a distressed infant across levels of parent sleep, work, chores, or couple conflict.

### *Conclusion*

This study explored the ways that experiences of stress and rejuvenation are linked to parents' well-being and relationships with their partners and infants after the transition to parenthood. In order to understand fathers' experiences and family relationships, we included mothers' experiences to illuminate how couple-level dynamics may be critical to understanding fathering and father well-being. We found that fathers' daily experiences, well-being, and relationship quality vary considerably from day to day and are related to both fathers' and mothers' well-being and the quality of family relationships on the same day. These results relating to the chronosystem (Volling & Cabrera, 2019) imply that daily fluctuation is an integral part of the early fatherhood experience. The results also point to the need to understand better the strengths and vulnerabilities of fathers, in the context of their family system, in coping with fluctuating levels of stress and resources. Individual differences in fathers' and families' coping styles may

help us understand better how the replenishing and stressful effects of some experiences accumulated over days to influence adjustment on a broader time scale. In some cases, mothers appeared to be more vulnerable to the influence of daily experiences than fathers, which may be related to stable male–female differences in stress physiology and coping, or perhaps to different levels of overall stress and strain in the transition to parenthood. The results indicated that using daily diaries in a measurement-burst design holds great promise for understanding fathering, mothering, and family systems dynamics—and thus, for improved targeting of preventive and clinical interventions.

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### III. Longitudinal Measurement Invariance Across Fathers' and Mothers' Reports of Maternal Gatekeeping Behavior

*Jin-kyung Lee, Sarah J. Schoppe-Sullivan, Xin Feng, Micah L. Gerhardt, and Claire M. Kamp Dush*

**Abstract** This study tested longitudinal measurement invariance across fathers' and mothers' reports of maternal gatekeeping behavior and examined associations between mothers' reported and observed gatekeeping behavior. Data were drawn from a Midwestern U.S. study of 182 dual-earner couples consisting of coresident fathers and mothers who had recently become parents. Fathers and mothers reported on mothers' gate opening and gate closing behavior at 3, 6, and 9 months postpartum. Observational ratings of the maternal gate opening and gate closing behavior were obtained at 9 months postpartum from 20-min mother–father–infant interactions. Using six items each for gate opening and gate closing behaviors supported by confirmatory factor analyses (CFA), we established measurement invariance across time and parent gender with full or partial support. However, observed maternal gatekeeping behavior did not correlate strongly with reported gatekeeping behaviors. Results support the use of the 12 items tested for future assessment of mothers' gate opening and gate closing behavior.

As described by the developmental ecological systems framework introduced by Volling and Cabrera in Chapter I of this issue, the social context, especially the family microsystem in which children and parents are embedded, is key to understanding parenting. Thus, making advances in assessing the social context of fathers' parenting—and especially, the family systems in which fathers are embedded—is critical to the advancement of the measurement of fathering behaviors, a core issue in the study of father–child relationships (Volling & Cabrera, 2019). An important component of the family context of parenting is the coparenting relationship between adults who share responsibility for rearing children, and a high-quality coparenting relationship provides critical support for parenting behavior (Feinberg, 2002) and fathering behavior in particular (Cabrera, Fitzgerald, Bradley, & Roggman, 2014).

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Corresponding author: Sarah J. Schoppe-Sullivan, Department of Psychology, Ohio State University, 225 Psychology Building, 1835 Neil Avenue, Columbus, OH 43210, email: schoppe-sullivan.1@osu.edu

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One aspect of the coparenting relationship that is posited as particularly influential for the closeness and quality of fathers' relationships with children is "maternal gatekeeping" (Piskernik & Ahnert, 2019; Schoppe-Sullivan, Altenburger, Lee, Bower, & Kamp Dush, 2015). Although conceptualizations of maternal gatekeeping differ, most contain at least two dimensions of maternal gatekeeping: *gate closing*, or behaviors that discourage fathers' active involvement in parenting, and *gate opening*, or behaviors that encourage father involvement and high-quality father-child relationships (Adamsons, 2010; Puhlman & Pasley, 2013; Schoppe-Sullivan et al., 2015). Maternal gate closing and opening behaviors are hypothesized to affect fathering behavior in several ways. One pathway positions maternal gatekeeping behavior as a specific mechanism underlying associations between the overall quality of the coparenting relationship and fathering behavior (Schoppe-Sullivan, Brown, Cannon, Mangelsdorf, & Sokolowski, 2008). Another possibility is that maternal gate closing dampens fathers' parenting self-efficacy, whereas maternal gate opening boosts this important predictor of fathers' parenting (Ponnet et al., 2013). Moreover, mothers' gatekeeping behavior may also be affected by fathers' demonstration of preparation for and commitment to parenting (Schoppe-Sullivan et al., 2015).

Consistent with these ideas, several longitudinal studies have linked maternal gatekeeping with resident fathers' involvement in parenting. This research has focused in particular on dual-earner coresident parents, because of their strong need for involved fathering, coupled with high levels of variability in fathers' actual involvement (Yavorsky, Kamp Dush, & Schoppe-Sullivan, 2015). Meteyer and Perry-Jenkins (2010) reported that greater maternal gate closing behavior at 1 month postpartum predicted lower father involvement in child care at 12 months postpartum while controlling for a host of other structural-, individual-, and family-level predictors. In addition, in a study that followed couples from prior to their first child's birth through 3.5 months postpartum, Schoppe-Sullivan et al. (2008) found that greater maternal gate opening behavior was associated with greater father involvement in child care above and beyond the effects of family income, mothers' work hours, and both parents' beliefs about fathers' roles. Although coresident fathers also engage in gate closing and gate opening behaviors toward mothers (Adamsons, 2010), the greater focus on maternal gatekeeping reflects the historically gendered nature of family roles and is consistent with persistent differences revealed by cross-national time use research: Women spend more time caring for children and other family members than men (Kan, Sullivan, & Gershuny, 2011), and a greater proportion of fathers' time with children happens in mothers' presence than vice versa (Craig, 2006).

Early conceptualizations of maternal gatekeeping centered on mothers' identity and beliefs about fathers' roles (Allen & Hawkins, 1999). More recent work has focused on developing a stronger measurement of mothers' behaviors toward fathers, which are hypothesized to link mothers' identity and beliefs with father-child interactions (Cannon, Schoppe-Sullivan, Mangelsdorf, Brown, & Szewczyk Sokolowski, 2008). In our work on maternal gatekeeping in two-parent families, we have used the Parental Regulation

Inventory (PRI; Van Egeren, 2000) to assess maternal gatekeeping behavior from the perspectives of fathers and mothers (e.g., Schoppe-Sullivan et al., 2015). The concrete behaviors that the PRI assesses are more likely to elicit agreement between parents and between informants and objective observers than more general statements about behavior or relationships (Mangelsdorf, Schoppe, & Buur, 2000).

Even as empirical research on maternal gatekeeping has grown, however, measurement of this construct has not kept pace. As noted by Volling and Cabrera (2019), better assessment tools for multiple aspects of the coparenting relationship are needed to advance fathering research, because of the central role of coparenting in models of parenting and fathering behavior (Cabrera et al., 2014; Feinberg, 2002). The purpose of this study was to test the measurement properties and validity of the PRI (Van Egeren, 2000) in a sample of U.S. Midwestern dual-earner couples with coresident fathers and mothers who recently became parents. Because parents continue to adjust to family changes after the child's birth and infants develop rapidly across the first year (see Feinberg et al., 2019), the transition to parenthood is an important time to assess the measurement properties and validity of measures of maternal gatekeeping, especially longitudinally across the first year post-transition. By providing more detailed information on the psychometric characteristics of the PRI in this population we hope to provide valuable information that can inform others' use of this measure in future research.

### Importance of Measurement Invariance Testing

Measurement of key family process constructs often presents a problem to family and developmental researchers; many of the constructs of interest cannot be directly observed (Dyer, 2015). For example, researchers cannot directly observe maternal gatekeeping, and thus conceptualize and measure it at the latent level. Indeed, maternal gatekeeping—like any social science construct—is a concept invented to explain observed phenomena. As researchers, we cannot assume any invented concepts are equivalent across any given stratification criteria unless this has been supported statistically (Dyer, 2015).

Testing for measurement invariance (i.e., whether a construct is equivalent across groups or time) may be particularly important when assessing reports from mothers and fathers about family relationships. For example, historically parenting measures have been created for, and tested with, mothers, and simply applied to fathers under the assumption that these measures are assessing the same construct (Volling & Cabrera, 2019). However, tests of measurement invariance indicate that mothers and fathers are not necessarily equivalent in various measures of parenting (Cabrera et al., 2014). Thus, the absence of evidence for measurement equivalence for assessments of maternal gatekeeping behavior means that we cannot assume

that mothers' and fathers' reports on maternal gatekeeping surveys are actually assessing the same construct, or that the construct of maternal gatekeeping is stable across important periods of family development such as the transition to parenthood when fluctuations in daily relationship and parenting experiences occur (Feinberg et al., 2019).

## Aims and Hypotheses

For the current study, we used survey data from 182 Midwestern U.S. dual-earner couples consisting of coresident fathers and mothers who completed the PRI (Van Egeren, 2000) at 3, 6, and 9 months after becoming parents for the first time. Because no prior psychometric work had been conducted on the PRI, we used these data to address the following exploratory questions: (a) Do fathers' and mothers' reports of the maternal gate opening and gate closing behavior show longitudinal measurement invariance within parent across a 6-month period? (b) Are fathers' and mothers' reports of the maternal gate opening and gate closing behavior invariant across parent gender? and (c) Are fathers' and mothers' reports of the maternal gate opening and gate closing behavior associated with observers' ratings of corresponding behaviors by mothers? We expected modest correspondence (i.e., small effect sizes; Cohen, 1992), in keeping with prior research on associations between reports and observations of couple behavior (Lorenz, Melby, Conger, & Xu, 2007). In addressing this question, we also included a measure of dyadic adjustment to assess discriminant validity.

## Method

### *Participants*

This study used data from the New Parents Project, which followed a convenience sample of 182 dual-earner primiparous couples consisting of coresident fathers and mothers across their transition to parenthood. Demographic characteristics of the sample reflected the inclusion criteria (i.e., expecting first biological child, married or cohabiting, working full time and planning to return to work after the child's birth, and at least 18 years of age) and Midwestern U.S. geographic region from which the sample was recruited. Of the 182 couples, 86% were married and 14% cohabiting. The median family income was \$79,500. Expectant fathers were 30 years old ( $M = 30.20$ ;  $SD = 4.81$ ; range = 18–50) and expectant mothers were 28 years old on average ( $M = 28.24$ ;  $SD = 4.02$ ; range = 18–42). Sixty-five percent of expectant fathers and 75% of expectant mothers had earned at least a bachelor's degree. The majority of the participants identified as White (86% of expectant fathers and 85% of expectant mothers). Of the remainder, 7% of expectant fathers and 6% of expectant mothers identified as Black, 3% of parents as Asian, and 5% of expectant fathers and 6% of expectant mothers

as other races and/or multiracial. In addition, 2% of expectant fathers and 4% of expectant mothers identified as Hispanic. The attrition/nonresponse rates for fathers were 5.49% ( $n = 10/182$ ) at 3 months, 31.87% ( $n = 58/182$ ) at 6 months, and 17.03% ( $n = 31/182$ ) at 9 months postpartum. The attrition/nonresponse rates for mothers were 4.40% ( $n = 8/182$ ) at 3 months, 29.67% ( $n = 54/182$ ) at 6 months, and 14.84% ( $n = 27/182$ ) at 9 months postpartum. Individuals who participated at multiple time points did not differ in education or race/ethnicity from those who only participated at 3 months postpartum with one exception: fathers who participated at multiple time points were more likely to identify as White,  $p < .05$ .

### *Procedures*

Expectant couples were recruited through childbirth education classes, newspaper ads, snowball sampling, and word-of-mouth and assessed at the third trimester of pregnancy and followed up at 3, 6, and 9 months postpartum. For this paper, we used father- and mother-report surveys completed at 3, 6, and 9 months postpartum and observational assessments conducted in a laboratory or home setting at 9 months postpartum.

### *Measures*

#### *Reported Maternal Gatekeeping*

At 3, 6, and 9 months postpartum, fathers and mothers were administered Van Egeren's (2000) PRI (see online supporting materials). This survey consists of 35 items, using a scale from 1 = *never* to 6 = *several times a day or every time*, which measure how often the baby's mother engaged in behaviors to encourage the father to participate in child care, and how often she engaged in particular behaviors when the father did something for the child with which she disagreed. Based on Schoppe-Sullivan et al. (2015), we used nine items to assess maternal gate opening and nine items to assess maternal gate closing (complete list of 18 items in Schoppe-Sullivan et al., 2015).

#### *Observed Maternal Gatekeeping*

At 9 months postpartum, maternal gate opening and gate closing behaviors were coded by two observers during two videotaped 10-min mother–father–infant interaction episodes in which parents were instructed to introduce a new toy to their infant together (a jack-in-the-box in the first episode and a pop-up toy in the second episode). Coders rated these episodes for two dimensions of maternal gatekeeping using 5-point global coding scales developed by Bayer (1992): *maternal negative control* (attempts to limit the father's interaction with the infant and criticism of his parenting; e.g., the mother points out that the baby doesn't like the way the father plays) and *maternal facilitation* (positive support for the father's interactions with the infant; e.g., mother turns the baby toward the father to invite interaction).

Scores on each scale were combined across episodes ( $r = .36$ ,  $p < .01$  for negative control and  $r = .27$ ,  $p < .01$  for facilitation across episodes). Coders overlapped on 86 of 153 videotapes (56%) to assess reliability. Gamma reliabilities were .799 and .937 for maternal negative control and .868 and .905 for maternal facilitation, in the two episodes.

#### *Dyadic Adjustment*

At 9 months postpartum, mothers and fathers reported their dyadic adjustment using the four-item brief Dyadic Adjustment Scale (Sabourin, Valois, & Lussier, 2005). Mean scores were computed separately for mothers ( $\alpha = .74$ ) and fathers ( $\alpha = .78$ ).

#### *Plan of Analysis*

We constructed two sets of two latent variables representing mothers' and fathers' reports of maternal gate opening and closing. Confirmatory factor analyses (CFA) were conducted separately for mothers and fathers and at each time point to confirm and refine the two-factor structure prior to measurement invariance testing. To evaluate the model fit indices in the CFA and measurement invariance testing, we considered RMSEA  $< .08$  and CFA  $> .90$  as acceptable and RMSEA  $< .05$  and CFA  $> .95$  as excellent (Hu & Bentler, 1999; Little, 2013). In light of the relatively modest sample size ( $N < 200$ ), we applied the cutoff for factor loadings at 0.4 (Tabachnick & Fidell, 2007). All analyses were conducted using Mplus 7.4 with maximum likelihood estimation (ML) (Muthén & Muthén, 2015) to handle missing data.

To address the first two questions, we tested for the first three levels of invariance: configural, metric, and scalar. Configural invariance indicates that the patterns of item loadings on the latent factor are similar. Metric invariance shows that loadings of corresponding items are equal. Scalar invariance tests equivalence between the intercepts of corresponding observed items (Vandenberg & Lance, 2000). If the invariance model was not fully supported at a certain level, we relaxed the equality constraints on the unequal parameters to achieve partial invariance. For all cases of partial invariance, we followed the guideline that the number of freed parameters should be less than 20% of the total parameters (Dimitrov, 2010). To determine whether the null hypothesis of invariance was rejected or not, we computed CFI change ( $\Delta$ CFI) between nested models; the invariance assumption is deemed tenable when  $\Delta$ CFI is .01 or less (Cheung & Rensvold, 2002). After testing measurement invariance, we also compared the variances, covariances, and means of the latent constructs (gate opening and gate closing) across time (3, 6, and 9 months postpartum) and reporter (fathers versus mothers). The  $\chi^2$  difference test was used to determine whether the latent model estimates differed across time or reporter (Little, 2013). To address our third question, we correlated the latent constructs of father and mother reports of gate opening and gate closing at 9 months with

observed maternal gatekeeping behavior and mothers' and fathers' reports of dyadic adjustment assessed at 9 months.

## Results

### CFA

We conducted CFA for fathers' and mothers' reports at the three waves using nine items for gate opening and another nine items for gate closing identified by Schoppe-Sullivan et al. (2015). We excluded three items from gate opening and three items from gate closing due to low factor loadings ( $<.40$ ), high skew, redundancy, or deterioration of model fit. In addition, following model modification indices we added the error covariances for two items. All CFA models fit the data adequately. The factor representing fathers' reports of maternal gate opening was negatively correlated with the factor representing fathers' reports of maternal gate closing at 3 and 6 months ( $p < .001$  at 3 months,  $p < .01$  at 6 months). However, there was no significant correlation between the latent factors representing mothers' reports of her own maternal gate opening and closing behavior at any wave.

### *Measurement Invariance Across Time*

#### *Father Report*

As shown in Table 4, the configural model had acceptable fit (RMSEA = .050, CFI = .913), which indicated that the patterns constructing the latent maternal gatekeeping factors reported by fathers were invariant across time. The CFI from the configural model to the metric model decreased within an acceptable level ( $\Delta\text{CFI} = -.004$ ), so factor loadings for father reports of the maternal gate opening and gate closing were longitudinally invariant. When we added the constraints of intercept invariance across time, the scalar model was also supported as the CFI decreased within an acceptable level ( $\Delta\text{CFI} = -.003$ ). Thus, for fathers' reports of maternal gatekeeping, the patterns and factor loadings of the latent factors, as well as the intercepts of the observed items, were invariant across time.

Next, we tested differences in variances, covariances (between time points), and means of the latent factors over time. With regard to the latent model estimates (Table 4), the homogeneity of variances and covariances were supported. Thus, time of measurement did not moderate the associations among the latent constructs, either within or between time points. In addition, the latent means of father-reported maternal gate opening did not differ over time. However, the latent means of father-reported gate closing differed across the three-time points: father-reported gate closing at 6 months was lower than at the other two time points ( $\Delta\chi^2_{(3)} = 10.672$ ,  $p < .05$ ).

TABLE 4  
LONGITUDINAL MEASUREMENT INVARIANCE FOR FATHERS AND MOTHERS

	$\chi^2$	<i>df</i>	$\Delta\chi^2$	$\Delta df$	RMSEA	CFI	$\Delta CFI$
Fathers ( <i>N</i> = 177)							
Measurement model estimates							
Configural	781.385***	540	–	–	.050	.913	–
Metric	813.335***	560	–	–	.051	.909	–.004
Scalar	841.313***	580	–	–	.050	.906	–.003
Latent model estimates							
Latent variances	842.606***	584	1.293	4	.050	.907	.001
Latent covariances	842.321***	582	1.008	2	.050	.906	.000
Latent means							
Gate closing	849.740***	582	8.427*	2	.051	.903	–.003
Gate opening	844.993***	582	3.680	2	.051	.905	–.001
Mothers ( <i>N</i> = 180)							
Measurement model estimates							
Configural	727.989***	540	–	–	.044	.913	–
Metric	744.540***	560	–	–	.043	.915	.002
Scalar	799.723***	580	–	–	.046	.898	–.017
Scalar_modified <sup>a</sup>	768.781***	578	–	–	.043	.912	–.003
Latent model estimates							
Latent variances	776.904***	582	8.123	4	.043	.910	–.002
Latent covariances	789.848***	580	21.067***	2	.045	.903	–.009
Latent means							
Gate closing	769.575***	580	0.794	2	.043	.912	.000
Gate opening	771.165***	580	2.384	2	.043	.912	.000

Note. CFI = comparative fit index; RMSEA = root mean square error approximation.

<sup>a</sup>Freed the intercepts of the item “criticize him” and the item “invite him to help” at 3 months postpartum.  
\**p* < .05 \*\*\**p* < .001.

#### Mother Report

As shown in Table 4, the configural model showed acceptable model fit (RMSEA = .044, CFI = .913), which confirmed that the patterns constructing maternal gate opening and gate closing reported by mothers did not differ across time. The CFI even increased when we added constraints on the factor loadings from the configural model to metric model. This metric invariance result indicated that the factor loadings were invariant across time ( $\Delta CFI = .002$ ). When we tested the invariance of the intercepts of the observed items, however, the CFI decreased more than the cutoff (–.010). The intercept of the item “criticize your baby’s father” at 3 months postpartum was lower than those at 6 or 9 months, but the intercept of the item “invite your baby’s father to help” at 3 months was higher than at later waves. After freeing the intercepts of those two items at 3 months postpartum, this modified scalar model supported partial invariance by showing an acceptable CFI decrease from the metric model ( $\Delta CFI = -.003$ ).

As shown in Table 4, the variances of the latent maternal gate opening and gate closing factors did not change over time. However, the correlations

between 3- and 6-month variables and those between 6- and 9-month variables were different; follow-up analysis indicated that maternal ratings on gate closing were more strongly correlated between 6 and 9 months than between 3 and 6 months ( $\Delta\chi^2_{(1)} = 19.266, p < .001$ ). The latent means for maternal report of gate closing and gate opening did not change over time.

*Measurement Invariance by Parent Gender: 3 Months*

As shown in Table 5, the configural model showed acceptable fit (RMSEA = .052, CFI = .920), which supported the claim that the pattern of loadings on reported maternal gate opening and gate closing factors did not differ by parent gender. However, when we added metric invariance constraints between fathers and mothers, the CFI decreased more than the cutoff ( $\Delta\text{CFI} = -.013$ ). This was because the factor loading of the item “criticize him” reported by fathers was much higher than the corresponding mother-reported loading. After freeing the factor loadings of this item between fathers and mothers, the CFI decreased within an acceptable level ( $\Delta\text{CFI} = -.004$ ). When we tested whether the intercepts of the observed items were invariant across parent gender, the CFI decreased again ( $\Delta\text{CFI} = -.028$ ). The intercept of the item “criticize him” reported by fathers was higher than that of mothers. After freeing the intercepts of this item, the CFI changed within an acceptable level ( $\Delta\text{CFI} = -.006$ ). These results supported partial invariance in metric and scalar models.

*6 Months*

As shown in Table 5, the configural model showed good fit (RMSEA = .037, CFI = .959), which assumed the patterns of free and fixed parameters were invariant between fathers and mothers. The CFI in the metric model even increased, indicating the improvement of model fit from the configural model ( $\Delta\text{CFI} = .005$ ). Therefore, factor loading invariance between fathers and mothers was supported. However, the scalar model by parent gender was not supported ( $\Delta\text{CFI} = -.035$ ). The intercepts of the item “invite him to help” and “criticize him” differed by the reporter: the intercepts for fathers on these two items were higher than those for mothers. After freeing these two intercepts, the CFI change in the modified scalar model was acceptable ( $\Delta\text{CFI} = -.005$ ). Thus, the patterns of factor structure and loadings were invariant by parental gender and the intercepts were partially invariant.

*9 Months*

The fit of the configural model was acceptable (Table 5), indicating that the patterns of maternal gate opening and gate closing were invariant between fathers and mothers (RMSEA = .044, CFI = .945). When we added the constraint of factor loading invariance, CFI increased only slightly from the configural to metric models ( $\Delta\text{CFI} = .001$ ). However, CFI for the scalar model decreased markedly from the metric model ( $\Delta\text{CFI} = -.031$ ). The intercepts of the item “invite him to help” and the item “compliment him”

TABLE 5  
MEASUREMENT INVARIANCE OF MATERNAL GATEKEEPING ACROSS PARENT GENDER

	$\chi^2$	df	$\Delta\chi^2$	$\Delta df$	RMSEA	CFI	$\Delta CFI$
3 months (N = 174)							
Measurement model estimates							
Configural	341.451***	232	–	–	.052	.920	–
Metric	369.110***	242	–	–	.055	.907	–.013
Metric_modified <sup>a</sup>	355.954***	241	–	–	.052	.916	–.004
Scalar	404.443***	251	–	–	.059	.888	–.028
Scalar_modified <sup>b</sup>	373.049***	250	–	–	.053	.910	–.006
Latent model estimates							
Latent variances	380.791***	252	7.742*	2	.054	.906	–.004
Latent covariances	383.509***	251	10.460**	1	.055	.903	–.007
Latent means							
Gate closing	374.734***	251	1.685	1	.053	.910	.000
Gate opening	385.408***	251	12.359***	1	.055	.902	–.008
6 months (N = 132)							
Measurement model estimates							
Configural	274.214*	232	–	–	.037	.959	–
Metric	279.600*	242	–	–	.034	.964	.005
Scalar	325.256**	252	–	–	.047	.929	–.035
Scalar_modified <sup>c</sup>	292.542*	250	–	–	.036	.959	–.005
Latent model estimates							
Latent variances	301.032*	252	8.490*	2	.038	.953	–.006
Latent covariances	294.731*	251	2.189	1	.036	.958	–.001
Latent means							
Gate-closing	299.071*	251	6.529*	1	.038	.954	–.005
Gate-opening	303.899*	251	11.357***	1	.040	.949	–.010
9 months (N = 155)							
Measurement model estimates							
Configural	302.815**	232	–	–	.044	.945	–
Metric	311.163**	242	–	–	.043	.946	.001
Scalar	348.669***	252	–	–	.050	.915	–.031
Scalar_modified <sup>d</sup>	331.474***	250	–	–	.046	.936	–.010
Latent model estimates							
Latent variances	334.525***	252	3.051	2	.046	.935	–.001
Latent covariances	333.976***	251	2.502	1	.046	.935	–.001
Latent means							
Gate closing	331.534***	251	0.06	1	.045	.937	.001
Gate opening	354.819***	251	23.345***	1	.052	.919	–.017

Note. CFI = comparative fit index; RMSEA = root mean square error approximation.

<sup>a</sup>Freed the factor loadings of the item “criticize him” between parental gender at 3 months postpartum.

<sup>b</sup>Freed the intercepts of the item “criticize him” at 3 months postpartum.

<sup>c</sup>Freed the intercepts of the items “invite him to help” and “criticize him” at 6 months postpartum.

<sup>d</sup>Freed the intercepts of the items “invite him to help” and “compliment him” at 9 months postpartum.

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

were different between fathers and mothers. The intercepts of these items reported by fathers were higher than those of mothers. After freeing these two intercepts, partial intercept invariance was supported ( $\Delta CFI = -.010$ ).

*Construct Invariance Between Mother and Father Report*

For each time point, after the scalar invariance model (full or partial) was confirmed, additional constraints for construct variances, covariances, and means between father and mother report were added to test equivalence at the construct level (Table 5). Overall, variances of paternal and maternal report differed at the first two time points, and follow-up analyses revealed differences in variances of gate opening only, with father report showing a larger range of variation than mother report at 3 ( $\Delta\chi^2_{(1)}=5.868, p < .05$ ) and 6 months ( $\Delta\chi^2_{(1)}=7.712, p < .01$ ). Covariances between reports of maternal gate opening and gate closing also differed at 3 months: the negative association between reports of maternal gate opening and gate closing was stronger for father's report than mother's report. In addition, the latent means of gate opening reported by fathers and mothers also differed across measurement occasions. Specifically, father report on maternal gate opening was lower than mother report at all three-time points. In terms of the latent means for gate closing, father's report was lower than mother's report at 6 months (Table 5).

*Correlations With Observed Maternal Gatekeeping*

Next, we tested correlations between the four father- and mother-report maternal gate opening and gate closing factors and the two observed gate opening and gate closing variables at 9 months postpartum. We also included fathers' and mothers' reports of dyadic adjustment to examine their associations with reported and observed gatekeeping behavior. Model fit was acceptable (RMSEA = .042, CFI = .935). Results showed that only mother-reported gate closing was significantly correlated with the observational gate closing variable ( $r = .221, p = .014$ ). Father-reported gate opening and gate closing were positively correlated with observed gate opening and gate closing, respectively, but these associations were not statistically significant ( $r = .100, p = .252$  for gate opening,  $r = .123, p = .180$  for gate closing). The mother-reported gate opening factor was not correlated with the observed gate opening variable ( $r = -.009, p = .921$ ).

Mother-reported dyadic adjustment was positively correlated with reported gate opening ( $r = .355, p = .000$  for mothers,  $r = .277, p = .001$  for fathers) and negatively correlated with reported gate closing ( $r = -.287, p = .000$  for mothers,  $r = -.193, p = .030$  for fathers). Father-reported dyadic adjustment was positively correlated with father-reported gate opening ( $r = .335, p = .000$ ). However, father-reported dyadic adjustment was not significantly correlated with mother-reported gate opening ( $r = .098, p = .270$ ). Fathers' reports of dyadic adjustment were negatively correlated with their reports of gate closing ( $r = -.456, p = .000$ ), as well as with mothers' reports of gate closing ( $r = -.313, p = .000$ ). Correlations between dyadic adjustment and observed gate opening and gate closing behavior were not significant ( $r$ s ranged from .001 to .122 in absolute value;  $p$ s ranged from .107 to .989).

## Discussion

The primary purpose of this study was to advance assessment of maternal gatekeeping behavior—one important aspect of the coparenting relationship—an important contributor to fathers’ parenting (Cabrera et al., 2014; Feinberg, 2002). Through this undertaking, we addressed two core issues raised by Cabrera and Volling (2019): take a family systems approach to study fathering and develop new assessment tools. We tested measurement invariance across time and reporter for items assessing maternal gatekeeping behavior drawn from the PRI (Van Egeren, 2000) using data from a sample of Midwestern U.S. dual-earner couples with coresident fathers and mothers who recently experienced the transition to parenthood. Using six items each for gate opening and gate closing behavior supported by CFA analyses, we established measurement invariance across 6 months’ time in infancy and parent gender with full or partial support. Thus, these sets of items appear to assess similar constructs across the early infancy period for fathers as well as for mothers.

In longitudinal measurement invariance testing for fathers and mothers, the constructs of gate opening and gate closing were invariant across time, reaching scalar invariance with only a few modifications. Only mothers showed a slight difference at 3 months: the intercept of “criticize him” was lower than in later waves, whereas the intercept of “invite him to help” was higher than in later waves. Even though fathers should be treated and studied as equal parents, because of gendered norms and ideologies for parenting, many mothers may see themselves as facilitators of fathers’ involvement in parenting, especially in the first few months of parenthood when parent–child and family relationships are forming and transforming (Feinberg, 2002; Feinberg et al., 2019). Interestingly, mothers’ reported gate opening and gate closing were not significantly associated at any time point, whereas fathers’ reported maternal gate opening and gate closing were significantly negatively associated at 3 and 6 months postpartum (although the difference in covariance by parent gender was only significant at 3 months). First-time mothers may perceive gate opening and gate closing as more orthogonal than first-time fathers, who appear to perceive maternal gate opening and closing more as opposite ends of the same dimension.

Regarding measurement invariance across parent gender, results indicated partial support; factor structures and loadings were invariant between fathers and mothers, but there were discrepancies in intercepts of several observed items (“criticize him,” “invite him to help,” and “compliment him”). Regardless of whether these items represented gate opening or gate closing, fathers’ intercepts were higher than mothers.’ However, the latent means for gate opening reported by fathers were consistently lower than those for mothers. It is possible that mothers are upwardly biased in their reports of gate opening behavior, perhaps due to social desirability.

A secondary purpose of this study was to validate the PRI by examining correlations between maternal gatekeeping reported by parents and observed in videotaped family interactions. Only mothers' and observers' ratings of maternal gate closing behavior at 9 months postpartum were significantly associated. The lack of associations between parents' reports and observations mirror other findings in the developmental literature (Mangelsdorf et al., 2000). A likely explanation is that the time horizon and context of the self-report and observational measures differed (Lorenz et al., 2007), with reports focused on the frequency of behaviors over a longer period of time, and observations focused on the frequency and intensity of behaviors during a brief, structured task. More encouraging was that associations between parents' reports of dyadic adjustment and reported and observed gatekeeping behavior were small to moderate in size (Cohen, 1992), providing preliminary evidence of discriminant validity.

### *Limitations*

Despite this study's contribution to measuring maternal gatekeeping, there are some important limitations. We used an existing measure of maternal gatekeeping behavior that does not distinguish between maternal encouragement and facilitation (i.e., support for the father's parenting vs. attempts to get a father more involved with his children; see Fagan & Cherson, 2017), which may have different implications for fathering behavior. In addition, maternal gate closing behavior may in some situations serve to protect children from harsh-intrusive paternal behavior (Zvara, Roger Mills-Koonce, Cox, & Family Life Project Key Contributors, 2016), but the PRI does not capture mothers' reasons for closing or opening the gate. Thus, maternal gatekeeping is ideally assessed in the context of additional information about family relationships and processes. Moreover, because of its focus on concrete behaviors, the PRI does not assess attitudinal and identity dimensions of maternal gatekeeping such as differentiated family roles or maternal identity confirmation (Allen & Hawkins, 1999).

The longitudinal measurement invariance results reported here may not generalize to populations other than the Midwestern U.S. dual-earner coresident primiparous fathers and mothers who we studied and were also predominately White and of higher socioeconomic status. Our sample also shaped our focus on gatekeeping by mothers. Fathers and other coparents, such as grandparents, engage in gatekeeping behavior; paternal gatekeeping may be more prevalent in families with primary caregiving fathers and those in which parents engage in shift work, whereas grandparent gatekeeping may be more prevalent in families with adolescent parents, and in cultural contexts in which extended family members play critical roles in parenting.

### *Future Directions*

We urge researchers to test the appropriateness and measurement properties of these items in other samples, especially those with nonresident fathers, older children, and fewer human capital resources. Given that family relationships are bidirectional, we also encourage future research on the conceptualization and measurement of paternal gatekeeping, dyadic patterns of gate opening and closing between coparents, parents' reactions to their partners' gatekeeping behaviors, the effects of gatekeeping on children, and the roles children play in gatekeeping behavior. Moreover, investigations of cultural and ethnic variation in gatekeeping behavior, including an adaptation of these items to assess gatekeeping by coparents besides mothers and fathers, will be important. In addition, future research should strive to further understand discrepancies between self-reports and observations of maternal gatekeeping to maximize the utility of reports from multiple informants, the gathering of which is considered a "gold standard" in developmental and family research. Further investigations into associations between maternal gatekeeping behavior and other aspects of the couple and coparental relationships (e.g., supportive and undermining coparenting, mother partnership behaviors, father emotional fidelity behaviors) may also inform a better understanding of their similarities and differences.

### Conclusion

In sum, fathers, mothers, and observers show both similarities and differences in their perspectives on maternal gatekeeping behavior; thus, there is much to be learned by gathering and analyzing multiple perspectives in the study of fathering. For researchers studying families with coresident fathers and mothers and young children in which both parents engage in paid work, we recommend using the 12 survey items we identified to assess maternal gatekeeping, while including other measures of the coparenting relationship and other important contextual influences on fathering behavior (Cabrera et al., 2014). Continued progress in understanding fathering behavior will be enhanced by inclusion of assessments of gatekeeping behavior in future studies; however, inclusion of such measures will not be informative without concomitant advances in the assessment of this construct and other aspects of the social and family contexts of fathers' parenting, and greater consideration of bidirectional relations between mothers' and fathers' behaviors.

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#### IV. In Search of the Father–Infant Activation Relationship: A Person-Centered Approach

*Brenda L. Volling, Matthew M. Stevenson, Paige Safyer, Richard Gonzalez, and Joyce Y. Lee*

**Abstract** The current study explored whether fathers and mothers from 195 two-parent U.S. families engaged in a form of *activation* parenting (i.e., sensitivity, cognitive stimulation, and moderate intrusiveness) with their secondborn, 12-month-old infants during a 15-min challenging teaching task, and to determine if this type of interaction was more common among fathers. Mean comparisons showed that fathers were lower on sensitivity, positive regard, and stimulation of development, and were more detached than mothers. Latent profile analyses revealed similar *supportive*, *disengaged*, and *activation* parenting profiles for fathers and mothers, with more fathers in the activation class. The  $\chi^2$  analyses found significant associations across mothers and fathers; most infants (30%) had activation fathers and mothers, with 26% having supportive mothers and activation fathers and 11.4% having two supportive parents. Parenting profiles were unrelated to attachment security. Results need to be replicated with children of different ages, with families from different backgrounds, and beyond the challenging teaching paradigm.

Research on father–infant interaction has burgeoned since Lamb (1975) claimed fathers were the forgotten contributors to child development. Fathers are fully capable of engaging in responsive, nurturant, and sensitive caregiving. On one hand, paternal responsiveness, sensitivity, and stimulation predict children’s social and cognitive development, even when controlling for maternal behavior (e.g., Malin, Cabrera, & Rowe, 2014; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004), but in other cases, relations between fathering and infant development have been less consistent (Lucassen et al., 2011; Van Ijzendoorn & De Wolff, 1997). As such, some scholars have started to formulate alternative theoretical models for the development and significance of the father–infant relationship, and the procedures that

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Corresponding author: Brenda L. Volling, Department of Psychology, University of Michigan, 530 Church Street, Ann Arbor, MI 48109, email: volling@umich.edu

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should be used to assess it (Bögels & Phares, 2008; Grossmann et al., 2002; Paquette & Bigras, 2010).

### The Father–Infant Activation Relationship

Many of the recent conceptualizations of fathering and its importance to children's development emphasize the role of fathers as playmates and protectors, who engage in active physical play and challenge their children to take risks (Grossmann et al., 2002; Majdandžić, de Vente, & Bögels, 2016; Paquette, 2004). Paquette (2004) argues from an evolutionary perspective that the emotional bond between mothers and children is primarily an attachment relationship in which mothers provide comfort in times of distress, which creates social harmony and connectedness. In contrast, fathers provide protection, encourage risk-taking in the context of safety, and promote exploration while setting appropriate limits, which ultimately facilitates infant self-regulation, autonomy, and exploratory competence. In the same way that responsive and sensitive caregiving contribute to a secure mother–infant attachment, Paquette (2004) argues that stimulating and challenging behaviors, often during RTP, excite, destabilize, and encourage the child to take risks and in the process promote the development of *the father–infant activation relationship*; the “attachment bond that fosters children’s opening to the world” (p. 202). Indeed, there is research showing that fathers are, at times, less sensitive and more intrusive, directive, and parent-centered than mothers in play activities (Hallers-Haalboom et al., 2017; Power, 1985; Tamis-LeMonda et al., 2004; Volling, McElwain, Notaro, & Herrera, 2002), and that fathers’ assertions and initiations in social toy play predict preschool children’s cognitive and social development (Roggman, Boyce, Cook, Christiansen, & Jones, 2004). Therefore, it is certainly possible that fathers engage in a more direct, stimulating, and challenging style of father–infant interaction that promotes children’s social competence. The primary goal of the current study was to uncover different profiles of father–infant and mother–infant interaction at the end of the first year and determine if one of those profiles provided support for activation relationship theory. Based on the developmental ecological systems framework presented in Chapter I (Volling & Cabrera), our focus on parent–infant interaction places the current work clearly within the microsystem level.

Several investigators have started to develop measurement instruments (e.g., observational and parent report) that assess different fathering behaviors that are consistent with activation relationship theory, including challenging parental behavior (Majdandžić et al., 2016), paternal dominance in RTP (Flanders et al., 2010), the encouragement of risk-taking (Hagan & Kuebli, 2007; Paquette & Bigras, 2010), sensitive-challenging behavior (Grossmann et al., 2002), and the quality of RTP (Fletcher, StGeorge, & Freeman, 2013). Because fathers engage in more RTP than mothers (e.g., Fliet, Daemen, Roelofs, & Muris, 2015; Majdandžić et al., 2016; Schoppe-Sullivan, Kotila, Jia, Lang, & Bower, 2013),

RTP has been a primary focus for father–child activation research, partly because it provides children with the necessary risk-taking in the safe confines of a playful father–child relationship. But, RTP constitutes only a small percentage (8%) of play interactions between parents and young children (Pellegrini & Smith, 1998), so other interactive contexts need to be considered when examining the evidence for the father–infant activation relationship (Majdandžić et al., 2016). In the current study, fathers and mothers were observed in a series of challenging teaching tasks (TTs) with their 1-year-old infants (Volling et al., 2002; Vondra, Shaw, & Kevenides, 1995) as one means to investigate a pattern of parenting that was stimulating and directive, but also done in a sensitive and responsive manner.

### Evidence for Activation Fathering

Evidence for an active and challenging form of fathering is beginning to emerge. During naturalistic home observations between parents and their 4-year-old children, Stevenson and Crnic (2013b) found a latent factor, which they labeled as “activative fathering” that included positive loadings for an opportunity for interaction and cognitive stimulation of development, a negative loading for fathers’ detachment, and a positive, yet moderate, level of intrusiveness. The fact that *moderate* levels of intrusiveness loaded positively with cognitive stimulation on one factor echoes the sentiments of others that fathers’ challenging, stimulating, and directive style of interaction in a positively supportive context allows children to feel safe and protected while exploring new horizons and experiencing novel situations (Bögels & Phares, 2008; Grossmann et al., 2002; Paquette, 2004). The idea that paternal intrusiveness may have different implications for children’s development depending on what other interaction behaviors manifest (e.g., positive or negative affect) is also echoed in the work of Karberg, Cabrera, Malin, and Kuhns (2019). Further, this latent factor of activative fathering at 48 months predicted children’s behavioral regulation in a problem-solving task and children’s sociability at 60 months.

Goodman, Crouter, Lanza, Cox, Vernon-Feagans, and The Family Life Investigators (2011) found further support for what may be the activation fathering construct. Fathers ( $N = 492$ ) were observed in a 10-min free play interaction with their 6-month-old infants during home visits. Father–infant interactions were coded using the well-established ratings of sensitivity, positive regard, intrusiveness, stimulation of cognitive development, and detachment from the NICHD Early Child Care Research Network (NICHD ECCRN, 1999), which were then subjected to a latent profile analysis (LPA) that revealed five latent classes for fathers: *sensitive/engaged* (11% of the sample), *detached* (19%), *intrusive/negative* (12%), *average parenting* (42%), and *stimulating/high verbal* (17%). This last class comes closest to the activation profile of fathering because these fathers used high levels of cognitive and verbal stimulation in the context of positive regard and

animated father–infant interaction. In the current report, we used exploratory analyses to search for a similar latent profile of activation fathering, a pattern of father–infant interaction that involved moderate levels of intrusive and mistimed, parent–centered behaviors, in combination with fathers’ efforts to stimulate cognitive development, while maintaining a sensitive and positively supportive relationship context.

Although evidence is accumulating for a latent construct of activation fathering, both Stevenson and Crnic (2013b) and Goodman et al. (2011) focused only on fathers, and did not test whether similar findings applied to mothers. Ryan, Martin, and Brooks-Gunn (2006) also took a person-centered approach (*K*-means cluster analysis) using 237 fathers and mothers from the Early Head Start Research and Evaluation Project who had participated in a “three-box” task with their 2-year-old toddlers, and found four groups of fathers and mothers: *highly supportive* (high on sensitivity and positive regard), *negative* (high on intrusiveness), *detached*, and *somewhat supportive*, which described mothers and fathers who were not as sensitive as highly supportive parents, but still high on cognitive stimulation, and slightly higher on intrusiveness. Could this last group of parents be the activation parenting profile? If so, it emerged for both fathers and mothers.

### Aims and Hypotheses

The first aim of the current study was to take a person-centered statistical approach to ascertain whether there was a latent parenting *profile* of activation that described fathers’ and mothers’ interactions with their secondborn, 12-month-old infants during a challenging, three-box, teaching task (TT). If an activation parenting profile was uncovered, we hypothesized that it would reflect a pattern fairly high in sensitivity and positive regard, with moderate levels of intrusiveness and cognitive stimulation, and low levels of detachment. In line with prior studies using person-centered approaches, we also hypothesized that additional parenting profiles would emerge: (a) *supportive parenting* (sensitivity, positive regard, cognitive stimulation, and low intrusiveness and detachment); (b) *intrusive, insensitive* (i.e., high intrusiveness, low sensitivity); and/or (c) *disengaged* (e.g., high detachment). Further, we hypothesized that similar groups of parenting profiles would emerge across fathers and mothers (see Ryan et al., 2006), but in line with activation relationship theory, there would be more fathers than mothers in the activation profile. The second aim was to examine whether profiles were related across fathers and mothers to determine if mothers and fathers in the same family interacted similarly or differently with their infants. Because Paquette (2004) argued that the father–child activation relationship is distinct from the mother–infant attachment relationship and that the strange situation procedure (SSP) is an invalid assessment of father–infant activation, the final aim was to test the relations between our resulting parenting

profiles and infant–parent attachment security resulting from the SSP. Throughout the remainder of this chapter, we refer to the hypothesized profile of parenting characterized by sensitivity, positive regard, and stimulation of cognitive development, with moderate levels of intrusiveness and low levels of detachment as *activation parenting*.

## Method

### *Participants*

Participants included 241 mothers and fathers who participated in a longitudinal investigation of child and family adjustment after the birth of a second child (see Volling et al., 2017, for details of recruitment, sample characteristics, and study design) conducted during the last trimester of the mother’s pregnancy with the second child, and 1, 4, 8, and 12 months after birth. Observational data for the current report are from the 195 families participating in the laboratory visits when the infant was 12 or 13 months old (counterbalanced across mothers and fathers) with complete data from at least one parent (184 families with complete data from both parents). The 195 families were not significantly different on mothers’ age, fathers’ age, years of marriage, infant gender, mother’s ethnicity, or father’s ethnicity from the 241 recruited families, but had significantly higher household incomes,  $\chi^2(3) = 18.61, p < .001$ , higher levels of father education,  $\chi^2(3) = 9.67, p = .02$ , and higher levels of mother education,  $\chi^2(2) = 11.31, p < .004$ . The sample was predominantly European American (85%), college-educated (85%), and middle-class, mean income = \$75,000–79,999. Mothers were 31.8 years,  $SD = 3.9$ , on average, with fathers 33.3 years,  $SD = 4.6$ . One-year-old infants included 83 females and 112 males.

### *Procedures and Measures*

The counterbalanced laboratory visits conducted at 12 and 13 months started with the SSP (see Ainsworth, Blehar, Waters, & Wall, 1978), which was followed with a 15-min, three-box, TT. Parents were presented with three boxes, each with a toy beyond the developmental level of the infant (see Vondra et al., 1995) and instructed to teach the child to (a) hit each key on a xylophone; (b) use a hammer to pound shapes on the back of a toy turtle; and (c) use each button and lever on a Sesame Street activity box. In prior research, parents were more intrusive and less sensitive in the TT compared to a free play, and direct parental assistance was often necessary for infants to engage the task (Volling et al., 2002). All sessions were video recorded for subsequent coding of parenting behavior.

### *Parenting Behaviors*

Trained coders rated six parenting behaviors using the same rating system as the NICHD ECCRN (2002), which utilizes a 7-point scale from 1 = *not at all characteristic* to 7 = *very characteristic* for (a) *sensitivity*—ability to

perceive and accurately interpret the infant's behavior and respond appropriately (ICC for reliability = .85); (b) *intrusiveness*—interventions or overstimulation that impinges on the infant's independence (ICC = .89); (c) *detachment*—lack of involvement and disengagement (ICC = .87); (d) *positive regard*—demonstrating positive feelings toward the infant (ICC = .82); (e) *negative regard*—demonstrating negative feelings such as criticisms and harsh tone (ICC = .84); and (f) *stimulation of cognitive development*—scaffolding the infant's cognitive development during the task (ICC = .79). Each of the three, 5-min intervals received a global rating on each parenting behavior, and these ratings were then averaged.

#### *Infant–Parent Attachment*

During the same laboratory visit, the SSP (Ainsworth et al., 1978) was conducted to assess infant–mother and infant–father attachment relationships, and infants were classified as *secure* (B), *insecure-avoidant* (A), *insecure-resistant* (C), or *disorganized* (D). Attachment distribution for the 191 mothers: A ( $n = 12$ , 6%), B ( $n = 118$ , 62%), C ( $n = 50$ , 26%), D ( $n = 11$ , 6%), and 189 fathers: A ( $n = 22$ , 11.6%), B ( $n = 117$ , 61.9%), C ( $n = 32$ , 16.9%), D ( $n = 18$ , 9.5%).

#### *Plan of Analysis*

Person-centered statistical approaches identify subgroups of people based on their similarities on a set of variables (Bergman & Magnusson, 1997) and are the perfect tool for uncovering parenting profiles. To address the first aim, LPA was conducted for mothers and fathers separately. One-way analyses of variance (ANOVAs) using class membership as the between-subjects factor with parenting behaviors as the dependent variables were conducted to examine class differences. The  $\chi^2$  analyses were performed to determine if resulting parenting profiles were associated across mothers and fathers (Aim 2) and with the security of the infant–parent attachment relationships (Aim 3).

## Results

#### *Preliminary Analyses*

All variables were consistent with a normal distribution, except negative regard for mothers and fathers, which occurred infrequently so both were dropped from analyses. There were no significant relations between demographic characteristics (i.e., income, mothers' and fathers' education, race/ethnicity, and age) and any of the mothering or fathering behaviors. Correlations and descriptive statistics can be found in Table 6. Mean comparisons across mothers and fathers using paired samples  $t$  tests revealed that mothers were higher on sensitivity,  $t(183) = 4.24$ ,  $p < .001$  ( $M_m = 4.26$ ,  $SD = 0.78$ ,  $M_f = 3.94$ ,  $SD = 0.83$ ), positive regard,  $t(183) = 5.43$ ,  $p < .001$

TABLE 6  
INTERCORRELATIONS, MEANS, AND STANDARD DEVIATIONS FOR MOTHERS AND FATHERS

Parenting Behaviors	1.	2.	3.	4.	5.
1. Sensitivity	<b>0.20**</b>	-0.37**	-0.61**	0.77**	0.51**
2. Intrusiveness	-0.51**	<b>0.22**</b>	-0.13	-0.14*	-0.03
3. Detachment	-0.54**	0.09	<b>0.25**</b>	-0.57**	-0.50**
4. Positive regard	0.78**	-0.18*	-0.58**	<b>0.04</b>	0.48**
5. Cog. stimulation	0.51**	-0.22**	-0.41**	0.45**	<b>0.16*</b>
Father					
<i>M</i>	3.96	2.02	1.91	3.66	3.45
<i>SD</i>	0.86	0.90	1.05	1.01	0.72
Mother					
<i>M</i>	4.26	2.06	1.60	4.15	3.88
<i>SD</i>	0.77	0.96	0.70	0.85	0.76

*Note.* Cog. = cognitive *M* = mean; *SD* = standard deviations.. Correlations for mothers are below the diagonal. Correlations for fathers are above the diagonal. Cross-parent correlations are on the diagonal in bold.

\* $p < .05$ , \*\* $p < .01$ .

( $M_m = 4.15$ ,  $SD = 0.84$ ,  $M_f = 3.65$ ,  $SD = 0.98$ ), and stimulation of cognitive development than fathers,  $t(183) = 5.95$ ,  $p < .001$  ( $M_m = 3.87$ ,  $SD = 0.76$ ,  $M_f = 3.45$ ,  $SD = 0.71$ ), and fathers were more detached,  $t(183) = -3.79$ ,  $p < .001$  ( $M_m = 1.60$ ,  $SD = 0.71$ ,  $M_f = 1.91$ ,  $SD = 1.04$ ), than mothers.

#### *Person-Centered Analyses for Fathering and Mothering*

LPA was conducted using Mplus Version 7.2 (Muthén & Muthén, 1998–2012) with full information maximum likelihood estimation. LPA creates latent classes, or groups, of individuals that have shared characteristics such that individuals in one class are more similar to each other than to individuals in other classes. To determine the model fit and the appropriate number of classes, we used the Bayesian Information Criteria (BIC), entropy, as well as the Lo–Mendell–Rubin adjusted likelihood ratio test (LMR-A). Smaller BIC values indicate better fit. Entropy indicates class distinctiveness with values closer to 1 suggesting good class distinction. LMR-A indicates whether there is a significant improvement in model fit of the  $k$  number of groups tested versus a  $k - 1$  model.

#### *Latent Classes of Fathering*

The four-class model,  $BIC = 2,125.28$ , entropy = .92, LMR-A = 98.71,  $p < .01$ , was considered the best model fit for fathering because there was a decrease in BIC relative to the three-class model,  $BIC = 2,128.30$ , and an increase for the five-class model,  $BIC = 2,147.96$ , indicating worse fit. Entropy (.92) was higher for the four-class model than the three-class model (.89) or five-class models (.87). In addition, the LMR-A indicated no improvement for a five-class model relative to a four-class model, LMR-A = 43.25,  $p = .37$ . Means for the five classes are presented in Table 7. The

TABLE 7  
MEAN DIFFERENCES IN PARENTING BEHAVIORS FOR FOUR-CLASS SOLUTION FOR FATHERS

Parenting Behaviors	Supportive ( <i>n</i> = 45)		Intrusive ( <i>n</i> = 9)		Activation ( <i>n</i> = 109)		Disengaged ( <i>n</i> = 24)		Total Sample ( <i>N</i> = 187)			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Sensitivity	5.01 <sub>a</sub>	.48	2.48 <sub>b</sub>	.44	3.88 <sub>c</sub>	.36	2.88 <sub>d</sub>	0.75	157.17**	.72	3.96	0.86
Intrusiveness	1.47 <sub>a</sub>	.44	3.96 <sub>c</sub>	.99	2.20 <sub>b</sub>	.80	1.47 <sub>a</sub>	0.56	38.94**	.39	2.02	0.90
Detachment	1.22 <sub>a</sub>	.25	2.00 <sub>b</sub>	.75	1.74 <sub>b</sub>	.61	3.99 <sub>c</sub>	1.12	102.62**	.63	1.91	1.05
Positive regard	4.81 <sub>a</sub>	.62	2.41 <sub>b</sub>	.62	3.58 <sub>c</sub>	.67	2.32 <sub>b</sub>	0.42	99.27**	.62	3.66	1.01
Stimulation	3.97 <sub>a</sub>	.63	2.96 <sub>b</sub>	.51	3.47 <sub>c</sub>	.63	2.60 <sub>b</sub>	0.37	30.11**	.33	3.45	0.72

Note. *M* = mean; *SD* = standard deviations. Scores with different subscripts are statistically different across groups based on post hoc tests using LSD. *F* values relate to tests of significance of group difference among four groups. \**p* < .05, \*\**p* < .01.

*Supportive* class ( $n = 45$ , 24.1%) had the highest sensitivity, positive regard, and stimulation of cognitive development, with the lowest scores on detachment. The *Intrusive* class ( $n = 9$ , 4.8%) was high on intrusiveness, low on positive regard, and was moderately disengaged. The *Disengaged* class ( $n = 24$ , 12.8%) had the highest detachment, lowest positive regard, and lowest stimulation of cognitive development of any class. The final and largest class was the *Activation* class ( $n = 109$ , 58.3%), which reflected the hypothesized pattern of activation parenting. These fathers were moderately high in sensitivity, positive regard, and cognitive stimulation, and low in detachment, but were also moderate in their levels of intrusiveness.

#### Latent Classes of Mothering

The three-class model for mothers,  $BIC = 2,034.65$ , entropy = .86, LMR- $A = 81.79$ ,  $p = .09$ , was considered the best model fit because the BIC decreased relative to a two-class model,  $BIC = 2,060.02$ , and the BIC increased for a four-class model,  $BIC = 2,043.85$ . Entropy for the three-class model increased relative to the two-class model (.84) and decreased for the four-class model (.85). Means for the three classes are presented in Table 8. The *Supportive* class ( $n = 79$ , 41.1%) was highest on sensitivity, positive regard, and stimulation of cognitive development, and had very low scores on intrusiveness and detachment. The *Disengaged* class ( $n = 19$ , 9.9%) had the lowest levels of sensitivity, positive regard, and stimulation of cognitive development, and highest levels of detachment compared to other classes. There was also an *Activation* class ( $n = 94$ , 49%), which was high on sensitivity, positive regard and stimulation of cognitive development, low on detachment, and moderate on intrusiveness.

TABLE 8  
MEAN DIFFERENCES FOR PARENTING BEHAVIORS FOR THREE-CLASS SOLUTION FOR MOTHERS

Parenting Behaviors	Supportive ( $n = 79$ )		Disengaged ( $n = 19$ )		Activation ( $n = 94$ )		$F(2, 189)$	$\eta_p^2$	Total Sample ( $N = 192$ )	
	$M$	$SD$	$M$	$SD$	$M$	$SD$			$M$	$SD$
Sensitivity	4.96 <sub>a</sub>	.47	3.16 <sub>b</sub>	0.36	3.90 <sub>c</sub>	.44	187.58**	.67	4.23	.77
Intrusiveness	1.53 <sub>a</sub>	.53	2.12 <sub>b</sub>	1.22	2.49 <sub>b</sub>	.96	27.24**	.22	2.06	.96
Detachment	1.16 <sub>a</sub>	.24	3.00 <sub>b</sub>	0.65	1.68 <sub>c</sub>	.56	123.62**	.57	1.60	.70
Positive regard	4.84 <sub>a</sub>	.52	2.77 <sub>b</sub>	0.53	3.85 <sub>c</sub>	.58	134.87**	.59	4.15	.85
Stimulation	4.32 <sub>a</sub>	.72	2.91 <sub>b</sub>	0.46	3.70 <sub>c</sub>	.57	46.30**	.33	3.88	.76

Note.  $M$  = mean;  $SD$  = standard deviations. Scores with different subscripts are statistically different across groups based on post hoc tests using LSD.

$F$  values relate to tests of significance of group difference among four groups.

\* $p < .05$ , \*\* $p < .01$ .

TABLE 9  
RELATIONS BETWEEN LATENT CLASSES OF FATHERING AND MOTHERING

Mother Classes	Father Classes				Total
	Supportive	Intrusive	Activation	Disengaged	
Supportive	21	4	48	3	76
Activation	17	5	55	13	90
Disengaged	5	0	6	7	18
Total	43	9	109	23	<i>N</i> = 184

*Note.*  $\chi^2(6) = 19.534, p < .01$ .

#### *Family-Level Associations Across Mother and Father Profiles*

As shown in Table 9,  $\chi^2$  analyses revealed a significant association between mother and father profiles,  $\chi^2(6) = 19.534, p < .01$ . Overall, 30% of infants had fathers and mothers with an activation profile. In families with supportive fathers, nearly half of the infants (48.8%) also had supportive mothers, but another 39.5% had activation mothers. In families in which infants had activation fathers, 50% also had activation mothers during the TT, with another 44% with supportive mothers. Finally, in families with supportive mothers, 63% of infants interacted with an activation father whereas only 27.6% of them had a supportive father. The remaining smaller groups showed dispersion across classes.

For the final aim, we examined the associations between the different parenting profiles for mothers and fathers and the infant's attachment classifications. The  $\chi^2$  analyses were nonsignificant for both mothers,  $\chi^2(6) = 5.89, p = .436$ , and fathers,  $\chi^2(9) = 8.35, p = .499$ , when examining the ABCD classifications, as well as when collapsing to secure (B)/insecure (ACD) groupings,  $\chi^2(2) = 4.53, p = .104$  for mothers and  $\chi^2(3) = 2.46, p = .489$  for fathers.

#### Discussion

The current research was clearly exploratory, but it was also theory-driven. The analyses were designed to test one of the basic tenets of Paquette's (2004) activation relationship theory; that infants develop a unique relationship with fathers, the father–infant activation relationship, due to the propensity for fathers to engage in more stimulating physical play, and to encourage exploration and risk-taking. To date, few studies have tested the premises of activation relationship theory. The initial findings of Stevenson and Crnic (2013b) were the first to uncover a latent factor consisting of both cognitive stimulation and moderate levels of intrusiveness that they labeled “activative” fathering. Other studies taking a person-centered approach have also identified groups of fathers who engaged in

highly stimulating and moderately intrusive interaction, while also maintaining sensitively responsive interactions. We hypothesized that a similar profile of activation fathering might emerge in the current study using a challenging, three-box TT. Observations of both father–infant and mother–infant interaction were available to search for the activation profile and to determine if it was more prevalent and characteristic of fathers’ teaching interactions, or whether mothers also engaged in activation parenting.

The current strategy for investigating activation relationship theory involved a combination of the “tried and true” in both procedures and statistical analyses and a bit of exploration in uncharted territory. As for the “tried and true,” we used a well-established interaction task, the three-box task, but modified it to be more challenging by making sure the tasks were all above the developmental level of the infant and telling parents to teach their children; a task we knew from prior research increased intrusive parenting behavior (Volling et al., 2002). Second, mother–infant and father–infant interactions were coded with a well-established and reliable observational coding system used widely in many large-scale studies with diverse groups of parents, and both mothers and fathers from low- and middle-income families (e.g., Tamis-LeMonda et al., 2004). This system was comparable to that used by Stevenson and Crnic (2013b) in their initial study of “activative” fathering and was also similar, if not identical, to the behavioral ratings in the many other studies using person-centered analyses (e.g., Goodman et al., 2011; Ryan et al., 2006). Observational methods are a common source of information on fathering and mothering in the field and in other studies in this issue, and may not yield similar results when parent reports are the source of information. For instance, Lee et al. (2019) utilized home observations of coparenting in the first year but did not find that observed coparenting correlated strongly with parents’ reports of maternal gate-keeping at 3, 6, or 9 months postpartum. Future research may benefit from using multiple methods to investigate the activation parenting construct further (see also Majdandžić et al., 2016).

For the uncharted areas of this investigation, we relied on exploratory, person-centered analyses (LPA) to uncover different parenting profiles or subgroups of parents. Four different classes emerged for fathers, with the largest class (58.3%) characterized by the activation pattern. These fathers engaged in moderate intrusiveness and cognitive stimulation in the context of moderately high levels of sensitivity and positive regard that should provide infants with the feelings of a safe haven while being challenged to explore. A similar behavioral profile, however, was found for mothers, indicating that some mothers, too, engaged in this style of parenting with their infants during the challenging TT. Supportive and disengaged profiles also emerged for both fathers and mothers. An additional intrusive class emerged only for fathers but represented only 4.8% of the fathers. The supportive profile replicated earlier findings (see also Goodman et al., 2011; Ryan et al.,

2006) in which parents were high on sensitivity, positive regard, and cognitive stimulation, but low on intrusiveness and detachment; a pattern of sensitively responsive interaction reminiscent of much of the research on mother–infant interaction based on Bowlby’s (1969) attachment theory. The fact that similar supportive and activation profiles emerged across the separate LPAs for mothers and fathers is also a replication of the two distinct profiles; found once for fathers, and again for mothers. In general, many of the chapters in this issue are exploring new territory and utilizing new statistical methods to measure and analyze fathering, a recommendation by the working group and part of the core issues presented by Cabrera and Volling (2019). For instance, Piskernik and Ahnert (2019) used experience sampling to capture the activities fathers engaged in with their children in naturalistic contexts and also used a person-centered approach to find different profiles of father–child activities. The implications here are that future research may benefit from using both variable-centered and person-centered statistical approaches to uncover novel parenting constructs that have been overlooked to date.

One might conclude from the LPA that fathers and mothers were more similar than different because of the discovery of similar latent profiles. However, the proportion (49%) of mothers in the activation profile was less than the nearly 60% of fathers. Similarly, 41% of mothers fell into the supportive parenting class, whereas only 24% of fathers did. It appears, then, that there are both similarities and differences in mothers’ and fathers’ parenting, at least as observed in the current investigation of predominantly white, middle-class two-parent families with 1-year-olds using a three-box, laboratory TT. Ryan et al. (2006) found surprisingly similar results, reporting that there were more mothers in the highly supportive cluster and more men in the “somewhat supportive” cluster (similar to activation parenting here).

As Feinberg et al. (2019) make clear, a family-level perspective requires that mothers and fathers be included in the same analysis, and analyzing data from both mothers and fathers simultaneously is often preferred. The LPA was conducted separately here for mothers and fathers given that each parent accompanied their infant separately during laboratory sessions that were intentionally separated by 1 month to minimize the testing effects on the infant of repeated exposures to the stressful SSP. But, fathers and mothers often occupy the same microsystem space, the family, and ideally, both parents should be included in the same analyses rather than analyzed in separate models (Core Issue 6; Cabrera & Volling, 2019). We did attempt to take the analyses to the family level by examining the associations between mother and father classes to see if infants had similar or different interactive experiences with their mothers and fathers. Nearly 30% of infants had both activation fathers and mothers, 26% had supportive mothers and activation fathers, 11.4% had both supportive mothers and

fathers, and 9% had supportive fathers and activation mothers. Further research is needed to determine what the developmental consequences are for infants when their fathers and mothers are either supportive or engage in activation parenting. Finally, if we have indeed uncovered an activation parenting profile, it was not related to the security of the infant–mother and infant–father attachment assessed concurrently using the SSP during the same laboratory visit.

### *Limitations*

The exploratory nature of the analyses is certainly a limitation. Inspired by the theoretical formulations of Paquette (2004) on the father–infant activation relationship, as well as an ecological framework situating parents and infants within the microsystem of the family (see Chapter I), the person-centered analyses were conducted to move beyond the maternal template and consider the alternative, theory-driven parenting constructs descriptive of fathering. Karberg et al. (2019) also considered whether intrusive paternal behavior may be experienced differently by children and may have different developmental outcomes depending on whether it occurs within the context of positively affectionate or hostile parent–child interactions, and we recommend that other researchers attend to these possibilities. The fact that we found evidence of an activation profile of fathering, that was replicated for mothers as well, is an encouraging first step, but there is a need for further investigations to test the robustness of these findings. We acknowledge that the results reported here may very well be limited to the challenging teaching context, the age of the infants studied (1 year), the observational coding system used (NICHD ECCRN 1999), the socio-economic and racial/ethnic makeup of our sample (middle-class White parents), the family structure (two parent), or the experiences of the parents (all infants were secondborn). Each of these aspects of the current work may limit the generalization of the findings, and further research is needed to see if the activation profile emerges in other studies, and what the developmental consequences are for children.

### *Future Directions*

There are several implications of these findings for future research. The first is to simply encourage investigators to move beyond the predominant theories, paradigms, methods, and procedures developed and tested on mothers, and consider examining theoretically driven parenting constructs that may be descriptive of fathering. In doing so, investigators need to be alert to the fact that mothers may also do these behaviors, and they are not simply unique to fathers. As such, both fathers and mothers need to be included in the same study. Second, the findings underscore a need to consider other social interactive contexts for testing activation relationship theory beyond RTP; the challenging

TT described here may be one of them. Majdandžić et al. (2016) recently described a risk room and obstacle course that provided different challenges for young children and parents, and have also created both a questionnaire and observational rating system of what they are calling challenging parental behavior. These multimethod means of assessing novel parenting constructs may be more fruitful than simply using one observational context and one assessment system. Finally, developmental scientists need to think creatively about developing new procedures and coding methods that go beyond the current observational paradigms and coding systems used to assess parenting (i.e., mothering). We must be willing to take risks and widen the lens to include additional parenting constructs that will advance our understanding of fathering and mothering (Cabrera, Volling, & Barr, 2018).

### Conclusion

The current study examined father–infant and mother–infant interactions to search for a style of activation parenting. Although there was evidence of an activation parenting profile, it was not unique to fathers, but also characterized a fair percentage of mothers. Results supported several recommendations resulting from this monograph advocating for research that includes both parents, an ecological systems perspective, and a need to widen our procedural repertoire of what constitutes parenting, and how we assess it.

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## V. What Does It Mean When Fathers Are Involved in Parenting?

*Bernhard Piskernik and Lieselotte Ahnert*

**Abstract** The present study examines fathers' direct engagement with children using experience sampling methods with 190 fathers in two-parent families in Austria with 1 to 5-year-old children. Father-child activities were sampled at random times over 1 week and three home visits were conducted to gather interview, questionnaires, and observational data. Latent Class Analysis uncovered three different profiles of father-child activities: (a) *Enriched*, (b) *Balanced*, and (c) *Restricted*. Boosted Classification Trees explored the associations between these profiles and the quality of father-child relationships and family functioning. Fathers who showed enriched, as opposed to restricted activities with the target children formed close attachments with them, displayed better interparental relationships and were less likely to be exposed to family stress, underlining paternal involvement as stronger affected by relationship dynamics in the family.

The nature of father involvement has become a central focus of research on fatherhood. Fathers' direct engagement with children, defined as interactions and engagement activities with the child, as well as passive supervision and control, has received considerable research attention as a central component of father involvement (e.g., Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Fagan, Day, Lamb, & Cabrera, 2014; Pleck, 2010). In line with the developmental ecological systems model (see Volling & Cabrera, 2019) the present study views paternal involvement as a complex nonlinear dynamic system that is affected by a multitude of (interdependent) factors, which, in turn, are affected by paternal involvement. In these self-organizing complex systems spanning the micro-, meso-, macro-, and exosystems of the fathers' ecology, small changes in one part of the system can lead to large effects in another part and vice versa (see Barton, 1994). Consequently, the complexity of these dynamic systems and the interrelations among variables may be obscured and misinterpreted if treated in a linear fashion, thus calling for nonlinear modeling strategies. In the current study, we applied this conceptual perspective to the assessment of paternal

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Corresponding author: Bernhard Piskernik, Faculty of Psychology, University of Vienna  
Liebiggasse 5, 1010 Vienna, Austria, email: [bernhard.piskernik@univie.ac.at](mailto:bernhard.piskernik@univie.ac.at)

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involvement with a focus on father–child activities as part of the family microsystem, and the relations between father–child activities and the family environment. The present study focused on father–child activities performed throughout a typical week and then adopted a person-centered approach (Bergman & Trost, 2006) that investigated patterns among the father–child activities to extract different groups or classes of fathers and children based on weekly activities. Once these classes were uncovered, a nonparametric supervised learning method was applied using features of fathers and their families to predict the different classes.

### The Nature of Paternal Involvement

Although there are multiple disciplinary perspectives, paternal involvement from an anthropological perspective is often viewed as more voluntary than maternal involvement, and the equality in the interparental relationship between mother and father may be important for determining paternal engagement (Geary, 2008). Family systems perspectives view fathers as equal parents (Cabrera, Volling, & Barr, 2018) even though they underscore that intrafamilial and extrafamilial factors play a role in determining father involvement. Prior research has indeed demonstrated that fathers are more engaged in families with harmonious marital relations, but less engaged in families with high levels of maternal gatekeeping (Schoppe-Sullivan, Brown, Cannon, Mangelsdorf, & Sokolowski, 2008). Some studies have found that fathers used more negative and intrusive parenting in families with more marital conflict and less positive marital relations (e.g., Belsky, Youngblade, Rovine, & Volling, 1991; Cox, Paley, Payne, & Burchinal, 1999). Paternal involvement was also related to overall relationship dynamics in the family (e.g., Volling et al., 2014) where the relationship quality may strengthen paternal involvement (e.g., Brown, Mangelsdorf, & Neff, 2012) and the family distress may hinder active fatherhood (e.g., Yoo, Adamsons, Robinson, & Sabatelli, 2015). Given the many family factors that covary with father involvement, it is necessary to consider these various family factors in predicting patterns of father involvement, and the activities fathers engaged with their children.

### Aims and hypotheses

Based on Fagan et al.'s (2014) suggestion “to take a step back and reassess how fathering is measured” (p. 391), the present study used a novel means of conceptualizing and analyzing paternal involvement, one of the core issues noted by Cabrera and Volling (2019). The first aim of the study focused on the activities that fathers do with their children in everyday life and used a person-centered approach (latent class analysis [LCA]) to find different groups of fathers that varied on active

engagement. The second aim was to focus on different features of fathers and their families to predict variability in classes by examining fathers' personality and attitudes; marital relationship quality, family relationship dynamics, and family stress. Searching for variations of paternal involvement in diverse family systems, we hypothesized that in families with highly involved fathers there would be better interparental relationships, more balanced relationship dynamics in the family, and less family stress than in families with less involved fathers.

## Method

### *Participants*

A sample of 200 two-parent families was recruited in Austria as part of a study by the Central European Network on Fatherhood (see Ahnert et al., 2017). Ten nonbiological fathers were excluded from analyses so the final sample consisted of  $N = 190$  families with two biological parents having 1.8 ( $SD = 0.8$ ) children. The target children (99 girls) averaged 33.0 ( $SD = 16.5$ ) months, and range from 12 months to 5 years. Nearly two-thirds (60.5%) of the children went to public child care centers for 27.2 hr/week on average. Fathers were 38.5 ( $SD = 6.0$ ) and mothers 35.6 ( $SD = 5.0$ ) years of age, on average. In 41.1% of the families, both parents had a master's degree or above; in 29.4% of the families, one parent had completed university, and in 29.5% of families, neither parent had a university degree. All fathers were in the paid labor force and worked, on average, 42.3 ( $SD = 9.0$ ) hr/week. Only 56.3% of mothers were employed and worked 23.3 ( $SD = 11.7$ ) hr/week, on average. Families lived in the city of Vienna (53.2%), or in the surrounding towns.

### *Procedures*

Three home visits were conducted by two research assistants within 2 weeks to gather information from families. During the first visit, sociodemographic characteristics of the families were collected, and the families were interviewed about daily routines in order to individually tailor the sampling scheme for the paternal activities assessment. Both research assistants, finally, observed the child's attachment to one, randomly chosen parent, using the Attachment Q-Sort (Waters, 1995). During the second visit, the father was introduced to the experience sampling procedure to assess father-child activities, which would begin the following day. Fathers were given a package of questionnaires on parental relations, relationship dynamics in the family, and family stress either to complete it during the visit or to return it at the third visit. During the third visit, the child's attachment to the other parent was observed by both research assistants. The Parent Development Interview was carried out with the fathers, and the remaining questionnaires were gathered.

### *Measures of Paternal Involvement*

#### *Timetable Interview*

In order to tailor the paternal activity assessments for each individual father, fathers and mothers were interviewed on the first visit regarding their everyday routines throughout an entire week. To calculate the total time fathers were accessible to the child, the following time frames were excluded from consideration: father's paid working hours, the child's out-of-home hours (e.g., in child care), and sleeping hours, leaving only overlapping time frames in which father and child were available to engage in activities with one another.

#### *Experience Sampling Procedure*

The software *movisensXS* (2014) was employed for experience sampling on the Android operating system and installed on either the father's own smartphone or on a provided device. Fathers were instructed to carry the smartphones everywhere and to respond reliably to a set of questions. These questions were to be answered across the individualized time frames derived from the timetable interview. Eight to 15 sets of questions were sent out randomly per day. The sets needed to be short and concise to prevent interruption of the normal flow of routines. Hektner, Schmidt, and Csikszentmihalyi (2006) demonstrated high ecological validity showing that subjects go about their normal everyday activities during experience sampling with very few thoughts about the fact that they will be asked to report on a small sample of their randomly selected daily experiences.

#### *Questions on Father–Child Activities*

Four different sets of questions were used during different times of the day. Each was kept as short as possible (less than half a minute), so as to not interfere with the father's ongoing activities. The *main set* was sent out multiple times over the entire time frame to obtain detailed information on a father's immediate location, anyone in his vicinity, and his current activities. The stylized questions of this survey were organized hierarchically, worded generally at first and then followed by increasingly detailed questions regarding father's activities. For example, Where are you?—at home/in the street/shopping/etc.—Is someone with you? (yes/no)—if yes: Who?—partner/<name of child>/etc.—if child: Are you doing something with <name of child>? (yes/no)—if yes: What are you doing?—supervising/caretaking/cuddling/playing/RTP/watching TV/etc.—if playing: What are you playing?—ball, sports/building blocks/etc. These activities were later categorized into seven generalized father–child activities: *supervision*, *basic care*, *joint play*, *rough-and-tumble play (RTP)*, *cuddling*, *scaffolding–teaching–encouraging (STE)*, and *watching television* (with the target child). In addition, three short sets of questions were used at key times of the day: (a) the *morning set* was sent out in the morning at 9:34 a.m. on average,  $SD = 91$  min, and asked whether the

father had engaged in *night care* (Were you called by your child last night? yes/no); (b) the *noon set* was sent at 11:58 a.m., on average,  $SD = 82$  min, and asked whether father and child had a shared breakfast (Did you have breakfast with your child? yes/no); and finally (c) the *evening set* inquired at 9:12 p.m., on average,  $SD = 70$  min, whether father and child had a shared dinner (Did you have dinner with your child? yes/no). Finally, fathers were asked to move a slider control as part of the phone app to indicate how typical the day was (1 = *typical* to 100 = *atypical*).

#### Data Aggregation on Father–Child Activities

Response rates were calculated from the number of questions sent out within the individually determined time frames as the proportion of responses based on total questions asked (% of responses). The response rates also yielded a duration time relative to the timeframe in which they occurred. As a result, each father–child activity yielded a measure of the probability of occurrence, as well as of duration (in minutes), which were later aggregated separately for workdays and days off work (see Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). Days with response rates lower than 25% or those categorized by the father as atypical (cut-off criterion > 90 on the slider control) were excluded (5.9%). Preliminary analyses revealed bimodal distributions with excess zeros and nonoccurrence of certain father–child activities (see Table 10).

#### Characteristics of Fathers and Families

Characteristics of the fathers (e.g., parental characteristics) and their families (e.g., sociodemographics, family stress) were extracted from interviews,

TABLE 10  
DESCRIPTIVE STATISTICS OF FATHER–CHILD ACTIVITIES

Father–Child Activities	Workdays			Days Off		
	Nonoccurrence	<i>M</i>	<i>SD</i>	Nonoccurrence	<i>M</i>	<i>SD</i>
Supervision (time)	51	0:35	0:29	48	1:55	1:13
Basic care (time)	21	0:58	0:37	28	2:09	1:19
Joint play (time)	29	0:40	0:29	28	2:13	2:08
Rough-and-tumble play (time)	72	0:24	0:15	74	1:01	0:28
Cuddling (time)	63	0:25	0:14	77	0:56	0:28
Scaffolding–teaching– encouraging (time)	77	0:25	0:16	81	1:37	1:11
Watching television (time)	82	0:23	0:13	89	1:32	0:11
Night care (rel. frequency)	55	52	30	74	78	26
Shared meals (rel. frequency)	05	61	26	06	83	24

*Note.* *M* = means; rel. = relative; *SD* = standard deviations. Nonoccurrences were omitted for *M* and *SD*. Nonoccurrence reflects percentages. Means and standard deviations of the time represents hours:minutes or the relative frequencies in percentages.

questionnaires, and observations of father–child and mother–child interactions. Two trained observers observed one parent during home visits conducted for at least 2 hr and then completed the Attachment Q-Sort independently. Resulting scores represent correlations with a criterion sort of the hypothetically most secure child and range from  $-1.00$  to  $+1.00$ , with higher scores indicating a more securely attached child. Interrater reliability yielded  $ICC = .93$  for the maternal AQS and  $ICC = .94$  for the paternal AQS scores; mean scores were calculated across observers and used in analyses. Table 11 provides details of the AQS and other assessments of the fathers and the family environments.

### *Plan of Analysis*

The first analysis involved a LCA, a person-centered strategy to model separate profiles of paternal involvement. Model fit was assessed by relative entropy,  $E$ , ranging from 0 to 1, with values closer to 1 indicating a better separation of the patterned profiles. The optimal number of profiles (classes) was determined by the *bootstrapped likelihood ratio test* (BLRT), which was given priority over criteria like AIC or BIC, as recommend by Nylund, Asparouhov, and Muthén (2007). BLRT assessed whether the  $k$  class solution fits the data significantly better than the  $k - 1$  class solution ( $p < .05$ ). To investigate the second aim of how the different characteristics of fathers and the family environment predicted paternal involvement profiles, the *gradient boosted classification tree* (BCT) machine learning technique (Friedman, 2001) was applied. BCT can discriminate between important and irrelevant predictors, and handles nonlinear relationships very well while producing easily interpretable results. It combines multiple classification trees to an ensemble (see Breiman, Friedman, Stone, & Olshen, 1984). Each tree in the ensemble is built on the basis of the principle of recursive partitioning, where the feature space is recursively split into regions containing observations with similar response values (for a detailed explanation see Strobl, Malley, & Tutz, 2009). In contrast to other ensemble methods, gradient boosting does not just combine parallel trees, but iteratively adds trees while reweighting the data to focus on the remaining classification errors while ignoring already correctly classified cases (Friedman, 2001). To avoid overfitting of the data, randomly selected 75% of available data (training sample) were used to train the model, while the remaining 25% were used to evaluate out of sample model quality. Following Breiman and Spector (1992), a fivefold cross-validation, in which the training sample was split into five equal parts, was performed to learn the optimal hyperparameters (i.e., model specifications such as number and depth of trees). Models were learned on four parts of the training sample with a given set of hyper-parameters and evaluated on the remaining part. Hyper-parameters that performed best in all splits were finally applied to the entire training sample. Once defined, this model was then verified on the remaining 25% of the data (test sample). To assess model quality, the *area under the ROC curve* ( $AUC_m$ ) was calculated in its multiclass generalization (see Hand & Till, 2001) in the training

TABLE 11  
CHARACTERISTICS OF FATHERS AND FAMILY ENVIRONMENT: ASSESSMENTS, DESCRIPTIONS, AND IMPACTS

Assessments	Descriptions of Features	Reliability	VI	IR
AQS: Attachment-Q Set (AQS: Waters, 1995): With father	Parental relations and characteristics Degree of child's attachment quality toward the parent, for example ranging from feelings of closeness and trust to feelings of being left alone and mistrust	ICC = .93 ICC = .94	1.00	1
With mother			0.64	4
RSA: Relationship Assessment (RAS: Hendrick, 1988)	Degree of satisfaction with child's mother, love, and realistic positive expectations	$\alpha = .87$	0.41	9
Maternal Gatekeeping (Fagan & Barnett, 2003)	A mother's tendency to supervise (or even restrict) the father's involvement	$\alpha = .92$	0.67	3
BFI: Big Five Inventory (BFI: John, Donahue, & Kentle, 1991)				
Extraversion	Extent of seeking stimulation in the company of others	$\alpha = .82$	0.53	7
Agreeableness	Tendency to be compassionate and cooperative	$\alpha = .59$	0.63	5
Neuroticism	Degree of responding worse to stressors, and interpreting ordinary situations as threatening	$\alpha = .71$	0.25	15
Openness	Degree of intellectual curiosity, creativity, and preference for novelty	$\alpha = .69$	-	-
Conscientiousness	Tendency to be organized and dependable	$\alpha = .68$	-	-
Work centrality: (Carr, Boyar, & Gregory, 2008)	Importance of work compared to family: Higher scores reflect a stronger emphasis on work	$\alpha = .82$	0.25	16
RF: Reflective functioning (Slade, Aber, Berger, Bresgi, & Kaplan, 2003)	Ability to understand internal states and how they influence behaviors and emotions of the child and oneself (coded from the Parent Development Interview)	Kendall's $\tau-b = .82$	-	-
PSI: Parental Stress Index (PSI: Abidin, 1995)	Family stress			
Role restriction	Degree of restrictions in maintaining former freedom and	$\alpha = .81$	0.30	11

(Continued)

TABLE 11. (Continued)

Assessments	Descriptions of features	Reliability	VI	IR
Competence	identity Degree of lack of practical knowledge and management skills of parenting	$\alpha = .78$	-	-
Isolation	Tendency to feel social isolation due to child-rearing responsibilities	$\alpha = .61$	-	-
Adaptability	Child's inability to adjust to environmental changes	$\alpha = .69$	0.45	8
Demandingness	Child's tendency to insist	$\alpha = .63$	-	-
Mood	Child's display of negative emotions	$\alpha = .75$	-	-
BSI-18: Brief Symptom Inventory (BSI-18: Derogatis, 2000)	Extent of overall psychological distress (Global Severity Index)	$\alpha = .82$	0.60	6
MSI-R: Marital Satisfaction Inventory (MSI-R: Snyder, 1997)				
Family history of distress	Degree of severe family disruptions in the father's family of origin	$\alpha = .78$	0.90	2
Dissatisfaction with children	Degree of disappointment in child-rearing, and overt conflicts with the child	$\alpha = .43$	-	-
Conflicts over child rearing	Extent of conflicts over child-rearing between the parents	$\alpha = .72$	-	-
Role orientation	Father's tendency towards more egalitarian attitudes	$\alpha = .76$	-	-
	Socio-demographic characteristics			
Ages: father/mother			-/0.13	-/.20
University degree (Y/N): father/mother			-/-	-/-
Working hours: father/mother			0.24/0.30	17/10
Income (father)			0.15	19
Children in household (number)/siblings of the target child (Y/N)			-/-	-/-
Age/gender (target child)			0.27/0.26	12/14
Grandparents' support (Y/N)/target child's out-of-home care (hours/week)			0.22/0.27	18/13

Note. IR = importance rank; N = no; VI = variable importance; Y = yes; - = not predictive in any tree.

and the test sample. Values of  $AUC_m$  between 0.5 and 1.0 indicated model fits from “better than chance” to “perfect fit.”

## Results

### *Profiles of Paternal Involvement*

Because of the large proportion of fathers who did not engage in some activities, the data were dichotomized into those fathers engaged in an activity and those not engaged (see Table 10). Using this binary information, LCA was carried out in Mplus 7.1 (Muthén & Muthén, 1998–2012); information about shared meals was omitted from analyses because it hardly varied. As a result, BLRT indicated a three-class solution for paternal involvement (3 vs. 2 classes,  $p = .006$ ; 4 vs. 3 classes,  $p = .526$ ) with  $E = .762$ . This justified good discrimination of three paternal involvement profiles with similar sizes of  $n = 57, 63,$  and  $70$ . The three profiles of paternal involvement were labeled *Enriched*, *Balanced*, and *Restricted* based on significant differences across certain father–child activities. All differences between the displayed occurrence probabilities that were greater than .2 proved to be significant according to the Benjamini–Hochberg  $\alpha$ -correction with a *false discovery rate* ( $FDR$ ) = .05. As seen in Figure 2, the *Enriched*

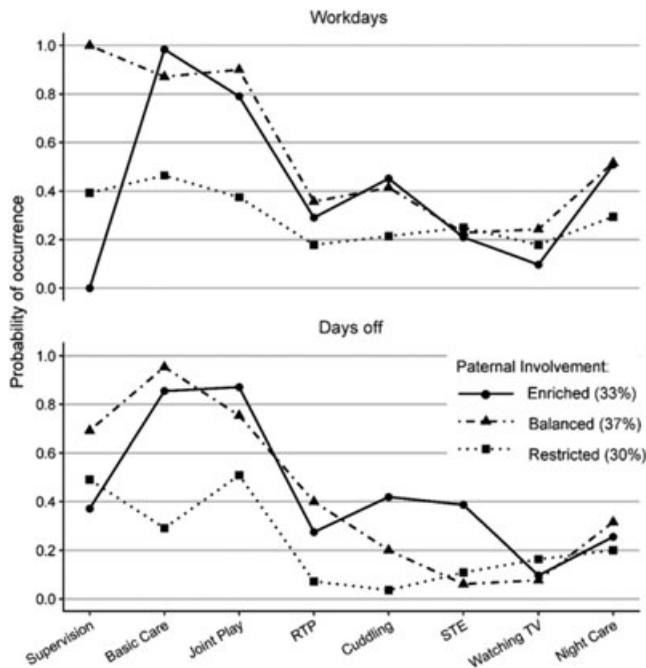


FIGURE 2.—Father–child activities in different paternal involvement profiles.  
*Note.* All differences greater than .2 are statistically significant. RTP = rough-and-tumble play; STE = scaffolding–teaching–encouraging.

paternal involvement class had high probabilities on *basic care* and *play* on fathers' workdays and days off; *STE* on fathers' days off, and more affection (*cuddling*) than the other two classes. The *Balanced* class resembled the *Enriched* class with respect to *basic care* and *play*, but fathers in the *Balanced* class supervised children more than the other classes on both workdays and days off, and were lower on cognitively stimulating activities and *cuddling* on their days off. Finally, the *Restricted* class was low on most father-child activities but relatively higher on *supervision*, *basic care*, and *play* than the other activities.

*Paternal Involvement: Versatility and Duration of Father-Child Activities*

To describe the versatility of father-child activities, generalized linear model adequate for Poisson distribution analyzed the number of different activities per profile based on their occurrence. The three profiles were treated as between-group factors and the workday-day-off distinction as a within-group factor. Results revealed the *Enriched* class engaged in more activities than the *Restricted* class,  $b = -0.34$ ,  $p = .002$ , but fewer activities than the *Balanced* class,  $b = 0.32$ ,  $p < .001$ . The number of father-child activities did not differ on workdays as compared to days off,  $b = 0.07$ ,  $p = .50$ , in general, but did differ based on class. On days off, fathers in the *Enriched* class engaged in more activities than fathers in the *Balanced*,  $b = -0.38$ ,  $p = .004$ , and the *Restricted* classes,  $b = -0.32$ ,  $p = .048$  (see Table 12).

The estimated duration of the father-child activities were subjected to an analogous mixed-effect ANOVA model (see Table 13), which revealed that fathers, in general, spent more time engaging with children on days off than on workdays,  $F(1, 187) = 312.2$ ,  $p < .001$ , *generalized eta-squared effect size*  $\eta_G^2 = .42$ . Furthermore, fathers of the *Enriched* and *Balanced* classes spent more time overall with their children than those of the *Restricted* class,  $F(2, 187) = 6.9$ ,  $p = .001$ ,  $\eta_G^2 = .04$ . No significant interaction between the profiles and type of day was found.

TABLE 12  
 VARIETY OF FATHER-CHILD ACTIVITIES IN THE PATERNAL INVOLVEMENT PROFILES

Profiles	Workdays			Days Off		
	Count	2.5% CI	97.5% CI	Count	2.5% CI	97.5% CI
Enriched	3.3	2.9	3.7	3.5	3.1	4.0
Balanced	4.5	4.0	5.0	3.3	2.9	3.8
Restricted	2.3	2.0	2.7	1.8	1.5	2.2

Note. CI = confidence interval; Count = estimated marginal mean counts.

TABLE 13  
DURATIONS OF FATHER–CHILD ACTIVITIES IN THE PATERNAL INVOLVEMENT PROFILES

Profiles	Workdays		Days Off	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Enriched	2:09	0:16	6:28	0:16
Balanced	2:25	0:15	5:57	0:15
Restricted	1:42	0:17	4:54	0:17

Note. *M* = means; *SD* = standard deviation (in hours:minutes).

*Paternal Involvement: Relations With Characteristics of Fathers and Their Families*

BCT analyses were conducted with the R package *gbm* v2.1.1 (Ridgeway, 2019). The training sample fit well with  $AUC_m = 0.71$ , and when this model was applied to the test sample,  $AUC_m$  stayed at 0.72, indicating excellent generalizability and good overall prediction quality. The 35 variables representing fathers and the family environment were used in the BCT analyses to test their impact in predicting the three paternal involvement classes. Only 20 of the variables were predictive, with the highest variable importance, relevance of the variable per tree averaged over all trees, for the security of the father–child attachment. The variable importance for father–child attachment served as the benchmark for comparing all other environmental features. Interparental relations, like *maternal gatekeeping* and *fathers’ satisfaction with child’s mother*, *mother–child attachment*, and family stress indicators like *perceived distress with difficult children* and *fathers’ manifested distress* also had relatively high variable importance. Fathers’ personalities, like *agreeableness*, *extraversion*, and *neuroticism*, yielded high to moderate variable importance and sociodemographic characteristics, like *mother’s weekly working hours*, *age of child*, *child’s weekly hours in out-of-home care*, *child’s gender*, *father’s weekly working hours*, *grandparents’ support*, *father’s monthly income*, and *age of mother* ended the series of predictive variables—see variable importance and ranks for all predictive variables in Table 11.

The four factors with the highest variable importance in predicting the classes were *father–child attachment* (1.0), *family history of distress* (.90), *maternal gatekeeping* (.67), and *mother–child attachment* (.64). Figure 3 shows in greater detail how these variables predicted the three father involvement classes. The *Enriched* profile was more likely when father–child attachment security was higher, regardless of mother–child attachment security and maternal gatekeeping. Fathers’ with low family histories of distress were also more likely to be in the *Enriched* class. In contrast, there was a greater likelihood of being in the *Restricted* profile, when father–child attachment security was low and mother–child attachment security was high, there was a higher incidence of a family history of distress. Interestingly, father–child attachment security

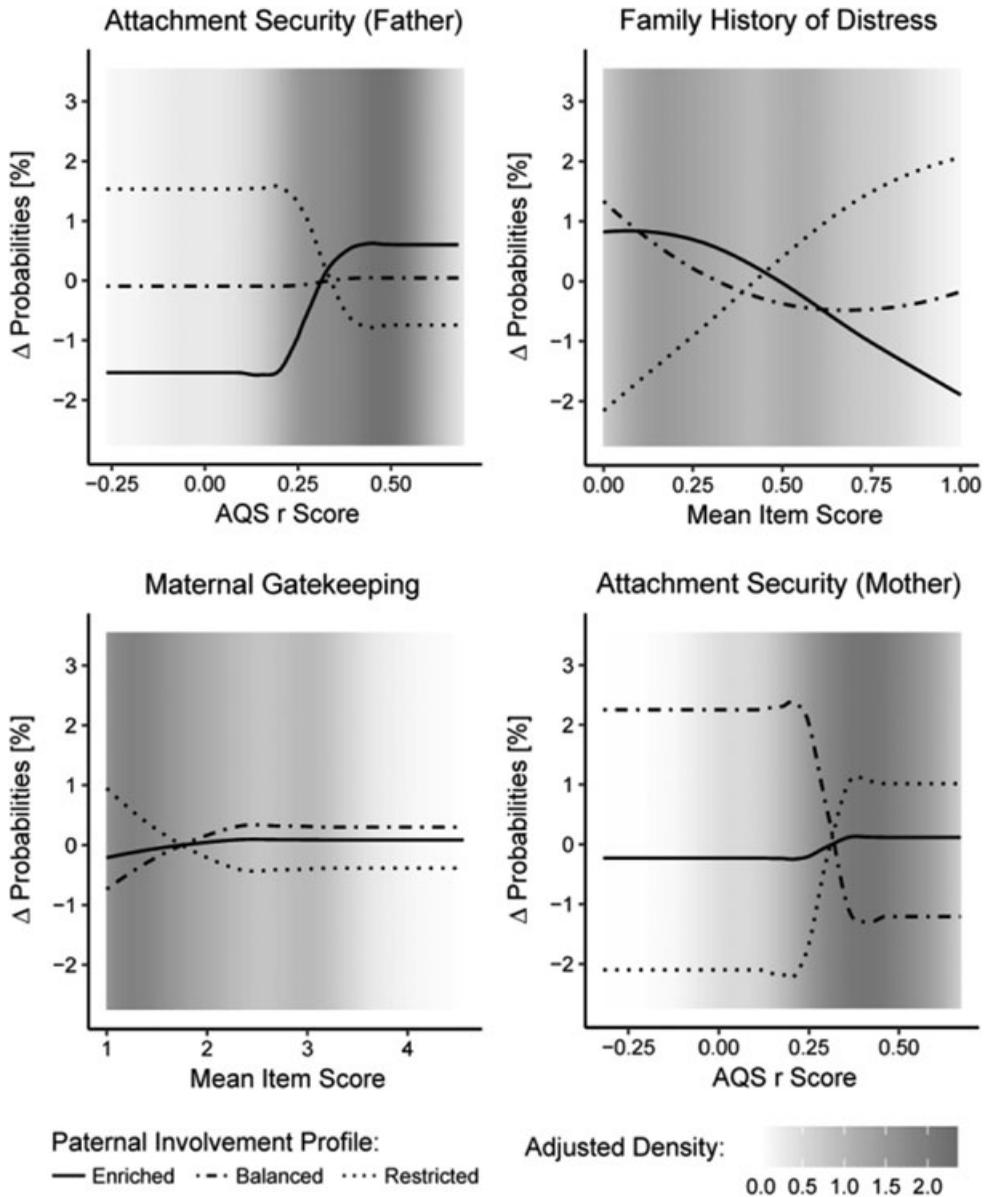


FIGURE 3.—Paternal involvement profiles as related to selected characteristics of the fathers and their families.

*Note.* The curves are LOESS-smoothed (see Cleveland, Grosse, & Shyu, 1992) for better legibility. The background gradient indicates how dense the respective feature is distributed along the scales (density adjusted for the scale’s amplitude).

did not appear to be related to the *Balanced* class; rather the *Balanced* class was more likely when mother–child attachment security was low and maternal gatekeeping was high; the *Balanced* class was also more likely when the father had the low family history of distress scores.

## Discussion

The present study conceptualized paternal involvement as a nonlinear dynamic system, comprising an enormous variety of father–child activities that were associated with a multitude of factors characterizing fathers and their families. The study was inspired by the mathematical field of nonlinear dynamic systems (Barton, 1994), which provided a novel means of describing father–child activities within a high dimension feature space. First, father–child activities were operationalized as person-centered descriptions of father involvement (Bergman & Trost, 2006). The activities were collected using experience sampling to obtain ecologically valid assessments of daily activities. Various types of father–child activities comprise father involvement (see also Fagan et al., 2019), and we included supervision and basic care to playing, scaffolding, teaching, and encouraging children. Second, these activities were then classified into three types of paternal involvement profiles or classes (*Enriched*, *Balanced*, or *Restricted*) using LCA, which revealed qualitatively different patterns of father involvement. The profiles were based on the occurrence of father–child activities on workdays and days off, but also on the different types of activities and the time invested in those activities. The *Enriched* class was characterized by high involvement in basic care and play, and a focus on education and affection, particularly on fathers’ days off from work. This profile excelled in the amount of time made for parenting, in general, and contained the greatest versatility of father–child activities among the assessed fathers. Implications of this result suggest that enriched father–child activities might have impacts on child development as children grow optimally based on rich adult–child interaction allowing cultural learning (Cabrera & Tamis-LeMonda, 2013; Lamb, 2010). Furthermore, the *Balanced* class of paternal involvement was similar to the *Enriched* class in terms of basic care and play, but with higher levels of supervision, and lower frequencies of cuddling and affection. The *Restricted* class was low on all father–child activities, with involvement in basic care, play, and supervision, suggesting that fathers spent less time in activities with their children overall. These findings provide strong support for the variability among fathers even of normal middle-class families, and the many activities in which fathers can and do engage in with their children.

### Predicting Father Involvement Profiles From Characteristics of Fathers and Families

A wide array of variables characterizing fathers and their families, including marital relations and family dynamics, were then evaluated for their prediction of the different classes of father involvement. In this regard, gradient boosted decision trees, an innovative data mining approach mainly applied in technical science, was applied to investigate many simultaneously

acting and interdependent nonlinear impacts. Recent studies have demonstrated how multiple facets of fathers and family functioning predict fathering behaviors (Cabrera & Tamis-LeMonda, 2013; Lamb, 2010), but gradient boosted decision trees allowed us to explore systematically the impact of multiple father and family characteristics obtained from interviews, questionnaires, and observations. The impact of these predictors was differential for the individual profiles. For instance, the *Enriched* profile was more likely when father–child attachment security was high and independent of mother–child attachment. This suggests that this profile assures father–child relationships that are formed and maintained through and within the father–child dyads themselves and relatively independent of influences from the mother. Not surprisingly, the *Restricted* profile was more likely with low father–child attachment security, yet high mother–child attachment security. In contrast, the *Balanced* profile seemed to be unrelated to father–child attachment security, but occurred more likely when mother–child attachment security scores were low. This can be interpreted as an involvement aimed to compensate for deficits in the mother–child relationship. The fact that maternal gatekeeping (see also Lee et al., 2019) is high in these profiles might speak to maternal backlashes. Other correlates were also more probabilistically related to the profiles. For example, distress in the fathers’ family of origin was less likely for fathers in the *Enriched* and *Balanced* profiles than those in the *Restricted* profile. Overall, security of the father–child attachment relationship was central in predicting the different father–child activities profiles, with other variables reflecting the dynamics of families coming into play (see also Feinberg et al., 2019), particularly the quality of the interparental relationship (e.g., marital satisfaction, maternal gatekeeping), mother–child attachment security, and a past history of family distress.

### Limitations

These results must be interpreted with regard to their limitations. Experience sampling provides a novel means of assessing day-to-day activities between fathers and children, but low-frequency activities, such as scolding or praising the child are difficult to capture. Thus, the profiles are based on activities that occurred often enough to be included in analyses. These other activities could have enhanced the description of paternal involvement by yielding additional insights into the quality of paternal involvement. For example, fathers who cuddle a lot with their children may also be more sensitive and use more praise, so even these brief activities, due to their covariance with cuddling, could complete the present profiles. Second, fathers’ and mothers’ working hours, children’s time spent in out-of-home care, and fathers’ income played a subordinate role in the prediction of paternal involvement profiles. Perhaps the

homogeneous sample, which only involved Austrian fathers from intact two-parent families of primarily middle class, obscured the effects of these other variables.

### Future Directions

Father–child activities and their correlates in other demographic groups and cultures may also differ, as prior research has indicated that different societal structures can either hinder or facilitate men’s family and parenting time (Gauthier & DeGusti, 2012) and future research should examine activities between fathers and children from other family backgrounds. The present study focused only on activities fathers did with children while accessible and available. A growing body of literature underscores the effects of spillover from men’s work to family life (see e.g., Bumpus, Crouter, & McHale, 2006), with significant impacts on parenting behavior. Understanding these experiences in men’s lives may be worth including in future research on fathering. Finally, the present study focused on paternal activities, but given that fathers and mothers parent in a complex system of activities (see Volling et al., 2019), future research would benefit from utilizing experience sampling with mothers, as well as fathers.

### Conclusion

The current paper used a novel, person-centered approach to transform the quantity of time fathers spent with the children into qualitative patterns of father–child activities that uncovered three different classes of paternal involvement. By focusing on different types of father–child activities, including supervision, basic care, play, educating, and cuddling the child, different patterns were associated with time spent on these activities. Thus, different profiles reflect both the quality of activities and the quantity of time spent in these activities. Embracing a wider view that embraces the ecology of fatherhood, the security of the father–child attachment, as well as current and past family relationships, emerged as particularly influential on paternal involvement.

### Acknowledgments

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## VI. Longitudinal Contributions of Maternal and Paternal Intrusive Behaviors to Children's Sociability and Sustained Attention at Prekindergarten

*Elizabeth Karberg, Natasha J. Cabrera, Jenessa Malin, and Catherine Kuhns*

**Abstract** We examined the association between U.S.-born mothers' and fathers' intrusiveness at 24 months and children's sociability and sustained attention at prekindergarten in a sample of low-income, ethnic minority children ( $N = 74$ ) enrolled in Early Head Start in the United States. Event-based coding captured the frequency and intensity of parents' intrusive episodes with their children as well as the contingent affect of parents and children during each episode. Fathers and mothers did not differ in frequency of intrusive episodes; fathers were more intensely intrusive but exhibited more positive affect during intrusive episodes than mothers. Children exhibited more positive affect during intrusive exchanges with their fathers than with their mothers. Positive mother-child dyadic affect but not intrusive behaviors at 24 months were not related to sociability and sustained attention in prekindergarten. Moreover, positive mother-child dyadic affect buffered children from the negative effects of maternal intrusive behaviors on sociability.

The quality of parent-child interactions is a strong predictor of children's social and emotional development (see Feldman, 2015; Volling & Cabrera, 2019). Intrusive, or over-controlling behaviors that use frequent physical behavior or verbal directives and limit children's autonomy to influence the focus or pace of play (Smith & Pederson, 1988), is an important predictor of maladjustment. Intrusive behavior is related to a host of negative child outcomes including poor effortful control (Eisenberg, Taylor, Widaman, & Spinrad, 2015) and social maladjustment (Feldman, 2015). Yet, for certain ethnic groups (e.g., Latinos) where intrusive parenting is normative, this socialization strategy does not appear to negatively affect children (e.g., Ispa et al., 2004). And the few studies on paternal intrusiveness are also mixed, either finding no associations with children's social engagement (Cabrera, Shannon, & Tamis-LeMonda, 2007) or finding negative associations with social skills (Stevenson & Crnic, 2013a).

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Corresponding author: Natasha J. Cabrera, Department of Human Development and Quantitative Methodology, University of Maryland, 3304E Benjamin Building, College Park, MD 20742, email: ncabrera@umd.edu

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## Theoretical Framework

We frame this study using the parental emotional socialization model that emotion-related parenting practices are directly related to children's emotional arousal and their social and emotional skills (Eisenberg, Cumberland, & Spinrad, 1998). This framework is well aligned with ecological theories that focus on a child's microsystem (the parent-child relationship) and the role of parental socialization in development (see Volling & Cabrera, 2019). Accordingly, children's social and regulatory behaviors are shaped by parents' positive and negative emotional expressions and the way they control children's emotional expression during parent-child interactions. This heuristic model suggests that parental intrusive behaviors may have different effects on children's outcomes depending on the dyadic affect. Intrusive behaviors accompanied by emotionally positive messages (e.g., smiling, laughing) may help children regulate their emotional arousal and behaviors (Eisenberg et al., 1998). When intrusiveness is accompanied by emotionally negative messages (e.g., frowning, yelling), it may exacerbate children's arousal. In this study, we examined the affect of the child and parent during intrusive episodes and its association with sociability and sustained attention.

The overall inconsistent findings linking parental intrusive behaviors to children's social adjustment can be understood in terms of several methodological limitations: (a) there is a lack of consensus in the way parental intrusive behaviors are coded (macro vs. microcoding), which may produce different results; (b) most studies do not assess both parents' intrusive behaviors, which makes it difficult to test for unique parental effects; (c) not all studies control for parental responsiveness (e.g., Flanders et al., 2010), thus confounding the effects pertaining to intrusiveness with those pertaining to other forms of parenting.

In the current study and based on the developmental ecological systems framework presented in Chapter I, we address these gaps and contribute to the literature in several ways. First, we used an event-based coding scheme to assess the frequency and intensity of maternal and paternal intrusive behaviors and the affect of the parent and child (i.e., dyadic affect) during intrusive episodes. We then explored whether the frequency of intrusive behaviors was as important as its intensity for children's social development and tested whether mutual dyadic affect during an intrusive episode moderated this association. Second, to assess unique parental effects, we examined how mothers' and fathers' intrusive behaviors (frequency and intensity) were associated with children's social and emotional skills. Finally, we focused on sociability (e.g., mood regulation, feelings, anxiety) and higher-order cognitive skills such as sustained attention because they are central to children's abilities to get along with others, control their behaviors, and regulate their feelings (Andrade, Brodeur, Waschbusch, Stewart, & McGee, 2009). These foundational skills emerge during the second and third

years of life, where children voluntarily control their attention to resolve conflicting feelings or behaviors and thus are increasingly able to stay focused or sustain attention on a specific stimulus (Rueda, Posner, & Rothbart, 2005).

We use data from a sample of low-income, ethnic minority mothers, fathers, and their toddlers to ask: (a) Are the intensity and frequency of mothers' and fathers' intrusive behaviors during play with their 24-month-old children associated with their sociability and sustained attention at prekindergarten? And, (b) does dyadic affect (mother-child and father-child) during intrusive episodes moderate the longitudinal association between the intensity and frequency of mothers' and fathers' intrusive behaviors and children's sociability and sustained attention?

### Mothers' and Fathers' Intrusiveness and Children's Socioemotional Skills

Acknowledging the variability in children's social and emotional development attributed to genetics (Deater-Deckard & Petrill, 2004), responsive parenting that includes autonomy granting, use of praise, positive affect, and sensitivity during parent-child interactions have been associated with children's sustained attention and social skills (Bernier, Carlson, & Whipple, 2010). Also, parents' positive affect during play stimulates children's interest in the task, refocuses their attention, and increases the likelihood that they will internalize their parents' values for desirable behaviors (e.g., paying attention).

In contrast, intrusive behaviors that do not support children emotionally are likely to increase children's stress and negative affect, which may affect their ability to sustain attention (Blair & Diamond, 2008). Children whose parents are over-controlling lag behind their peers in the development of social and emotional skills (Blair & Diamond, 2008). Parental over-control, characterized by intrusiveness, excessive demands, and redirecting of the child's behavior without sensitivity to the child's cues, may be most frustrating to toddlers who are beginning to engage in more autonomous behaviors (Calkins & Johnsons, 1998). Intrusive parental behaviors have been shown to interfere with children's spontaneous engagement in play and diminish their motivation to pursue their interests (Smith & Pederson, 1988). Parents who exhibit high levels of intrusive behaviors have children who are anxious (Majdandžić, Möller, de Vente, Bögels, & van den Boom, 2014), and exhibit behavioral problems and regulatory difficulties (Clincy & Mills-Koonce, 2013; Ispa et al., 2004). Parents' intrusive behaviors may also distract children from focusing on a task and reduce their motivation to practice sustained attention.

However, studies with non-White and socioeconomically diverse samples of mothers find inconsistent results. An early study of Cuban mothers found that observed controlling behavior was not associated with school-aged boys' behavioral problems (Lindahl & Malik, 1999). In contrast, a study of low-income children enrolled in Early Head Start (EHS) found a positive association between intrusive behaviors and poor emotion regulation

(Cabrera et al., 2007). Other studies that have found a positive association between intrusive parenting and maladjustment (e.g., little eye contact and not responding to the parent) found the effect sizes were relatively small mostly because ethnic minority mothers exhibited higher levels of positive affect than White mothers (e.g., Ispa et al., 2004). Thus, mothers' affect during intrusive interactions may be an important moderating factor.

The literature on how fathers' intrusive behavior is related to children's socioemotional skills is smaller than the literature with mothers but just as inconsistent in its findings. Part of the reason might be that the construct of intrusive behavior is not uniformly assessed across studies. For example, the work of Volling et al. (2019) shows that activation parenting as a class of behaviors, which includes intrusiveness, is observed more often among fathers in two-parent middle-class families than among mothers. Some studies have found that fathers who exhibit intrusive behaviors have children who are likely to experience externalizing and internalizing problems (Stevenson & Crnic, 2013a) and others have not (e.g., Cabrera et al., 2007). Neither of these studies, however, assessed the affect of the parent and child (dyadic affect).

#### *Mothers,' Fathers' and Children's Affect and Social and Emotional Skills*

Children who exhibit positive affect toward their parents are happier and better adjusted than children who do not (Isley, O'Neil, Clatfelter, & Parke, 1999; Morris, Silk, Steinberg, Myers, & Robinson, 2007). Ispa et al. (2004) found that the emotional climate of the mother-child interaction moderated the association between intrusive behaviors and children's skills.

#### Event-Based Coding of Parental Intrusive Behaviors

Typically, studies of parent-child interactions use a global or macrocoding (e.g., code 10-min interactions in 10-s intervals) approach that combines intensity and frequency of the behavior of interest into one metric (Tamis-LeMonda et al., 2008). This global coding approach does not accurately reflect the reciprocity and moment-to-moment variability of parent-child interactions (Morawska, Basha, Adamson, & Winter, 2015). In contrast, event-based coding (e.g., coding the specific event only when it is observed) is more sensitive to the moment-to-moment variability, giving us information about behaviors *in direct response* to a particular event and code for the intensity (e.g., parental intrusiveness) *only when it is observed* (Yaman, Mesman, van Ijzendoorn, Bakermans-Kranenburg, & Linting, 2010). We use this approach to code for the dyadic affective response to a particular episode of intrusive parental behavior.

#### Aims and Hypotheses

We examined the longitudinal associations between maternal and paternal intrusiveness at 24 months and children's sociability (e.g., ability to regulate

mood, levels of energy and activity) and sustained attention at prekindergarten using a newly developed event-based coding scheme that captured the frequency of intrusiveness, the intensity of each intrusive episode, and the dyadic affect of the parent-child interaction during each intrusive episode. First, we tested whether maternal and paternal intrusive behaviors were linked to children's sociability and sustained attention. Second, we examined whether dyadic affect moderated the association between parental intrusive behaviors and children's outcomes. We hypothesized that higher levels of maternal and paternal intrusive behaviors would be associated with lower levels of children's sociability and sustained attention skills and that this association would be attenuated when children and their parents exhibited positive affect during intrusive episodes.

## Method

### *Participants*

Participants were 74 fathers, mothers, and their toddlers from low-income African American ( $n = 37$ ) and Latino ( $n = 37$ ) families who participated in the Father Involvement with Toddlers Substudy (FITS;  $n = 727$ ) of the Early Head Start Research Evaluation Project (EHSREP;  $N = 2,000$ ). The children participating in the FITS study were recruited from EHS sites across the United States (see Boller et al., 2006 for more information). All participating families in both studies were eligible for EHS services based on family income (at or below the federal poverty level), as EHS is a federal program that provides services for low-income families (see Administration for Children and Families, 2002). From the FITS sample, we selected a subsample of ethnic minority children with available videotaped mother-child and father-child observational data at the 24-month data collection wave and outcome data at the prekindergarten wave, which took place the spring before kindergarten entry when children were approximately 5 years old. In general, parents who participated in FITS were more likely to be employed and have completed more years of education than families who only participated in the broader EHSREP (see Mitchell & Cabrera, 2009 for more detailed analysis of selection bias). Twenty-four children lived with married, biological parents and 26 children lived with cohabiting biological parents. Fifty-seven percent ( $n = 41$ ) of the children were female and their mean age was 25 months old (range 23–28). The majority of the fathers and mothers in the sample, 84% and 74%, respectively, had at least a high school education. Forty-seven percent of families lived below the poverty line when the child was 24 months old.

### *Procedures and Measures*

#### *Children's Sociability and Sustained Attention at Prekindergarten*

Children's sociability and sustained attention at prekindergarten were assessed by asking children to complete a series of protocol-defined tasks using the Leiter International Performance Scale, Social-Emotional Rating Scale,

Revised (Leiter-R; Roid & Miller, 1997). The Social-Emotional Examiner Rating Scale gathers information about the individual's attention, organization skills, impulse control, activity level, anxiety, energy and feelings, mood regulation, sociability, and sensory reactivity. The Leiter-R was developed to assess intellectual function, including sustained attention, in children with limited verbal abilities. Trained EHSREP assessors (Boller et al., 2006) assessed children's *sustained attention* using a task in which children were asked to find and cross out pictures with a determined target. Higher sustained-attention scores reflected greater numbers of correct answers with fewer errors, indicating focused attention and greater vigilance. *Children's sociability* was rated by trained EHSREP assessors based on observations of toddlers' interactions with other children and their teachers. Higher scores indicated higher levels of sociability (i.e., children were more alert, interactive). Sociability scores ranged from 4 to 10 ( $M = 9.14$ ,  $SD = 1.38$ ; see Boller et al., 2006).

#### *Parental Intrusive Behaviors*

Parental intrusive behaviors were assessed during observed 10-min semistructured parent-child interactions using an event-based coding developed by this study's authors. In the larger FITS study, mothers and fathers were provided with three bags, each containing either a book or toy, and were instructed to divide up the 10-min of play among the bags. The event-based coding scheme captured intrusive episodes, defined as times when parents imposed their agenda on their child despite signals from the child that a different activity, level, or pace was desired (Stevenson & Crnic, 2013a). The coding scheme captured the intensity of each intrusive episode and the frequency of intrusive episodes across the interaction. The *intensity* of each intrusive episode was rated using a 5-point scale (1 = *no intrusiveness*, 5 = *extreme intrusiveness; the parent doesn't allow the child to lead/express autonomy at all*). The number of intrusive episodes was summed to determine the *frequency of intrusive episodes* observed in 10 minutes of parent-child interactions. Coders—authors on this chapter—independently identified episodes of intrusiveness and rated the intensity on 20% of the videos. Raters agreed on all episodes of intrusiveness, achieving perfect reliability on the frequency of intrusiveness. Inter-rater reliability was achieved on the intensity of intrusiveness when coders agreed 90% of the time within 1 point on all of the videos coded. Some videos were in Spanish; both coders speak Spanish.

To validate the event-based coding scheme, we conducted bivariate correlations with global codes of intrusiveness. We used global intrusiveness codes completed at Columbia University as part of the EHSREP (see Boller et al., 2006). The global coding used by the EHSREP study was adapted from the NICHD Study of Early Child Care's coding scales (Appelbaum et al., 2001; see Love et al., 2005), which rated mothers' and fathers' intrusiveness during the entire three-bag task on a scale from

1 to 7 (1 = *very low* to 7 = *very high*). Mothers' and fathers' intensity of intrusiveness (event based) was positively correlated with the global intrusiveness rating ( $r = .33$ ,  $p < .01$  for mothers;  $r = .43$ ,  $p < .001$  for fathers), providing evidence of convergent validity for the event-based coding of intrusiveness.

#### *Dyadic Affect*

Dyadic affect was defined as both the parent and child's contingent affect to a particular intrusive episode. Dyadic affect was scored from 1 (1 = *negative affect*; crying or frowning, pouting, clearly distressed; 3 = *neutral affect*) to 5 (5 = *positive affect*; laughing or smiling the whole time). At each parental intrusiveness episode, the simultaneous parent and child affect were coded. Parents and children were each given an affect score using the same scale, and on average, children displayed more negative affect ( $M = 2.8$  with mothers; 3.1 with fathers) than their parents ( $M = 3.1$  for mothers; 3.3 for fathers). Two independent coders—both authors on this chapter—rated paternal, maternal, and child affect during the identified episodes of intrusiveness following the same procedures for reliability described above. Reliability was achieved when the two coders reached or were near agreement (i.e., within 1) 90% of the time. From these scores, we also calculated the *mutual dyadic affect* by creating a variable that assessed whether parents and children displayed the same affect (e.g., positive) during the intrusive episode (range:  $-1 = \textit{both display negative}$ ;  $0 = \textit{discordant affect}$ ; and  $1 = \textit{both display positive affect during all intrusive episodes}$ ).

#### *Control Variables*

Correlations among possible confounding variables, child gender, maternal education, paternal education, ethnicity, child language skills, and parental responsiveness, were conducted. Results revealed that fathers were more intrusive with boys than girls so child gender was controlled in subsequent analyses. A power analysis was conducted to determine the minimum required sample size to detect an effect size of .20 (i.e., small effect; Cohen, 1992). With four predictor variables in the model, an  $\alpha$  level of .05 and 80% power (i.e., statistical convention), a minimum sample of 53 families was determined to be required.

#### *Plan of Analysis*

To address our research questions, we first descriptively examined the frequency and intensity of intrusive episodes among mothers, fathers, and their 24-month-old children and the dyadic affect of those episodes. Next, we conducted two sets of OLS multiple regression analyses: the first set predicted children's prekindergarten sociability and the second set predicted children's prekindergarten sustained attention. These analyses

examined (a) whether the intensity of mothers' and fathers' intrusiveness at 24-months predicted children's sociability and sustained attention at prekindergarten and (b) whether the dyadic affect of the interaction moderated this association. In the first step we entered the intensity of maternal or paternal intrusiveness; second step we entered the dyadic affect and the interaction term between parents' intrusiveness and affect (maternal intrusiveness  $\times$  dyadic affect; paternal intrusiveness  $\times$  dyadic affect); and, third step we entered our control variable, child gender. We entered child gender last in the models to test the association between our independent variables and dependent variables as well as whether this association held after accounting for child gender.

Of our sample of 74 families, 14 mothers, and 10 fathers showed no intrusiveness during 10-min play-child interactions. These parents were given scores of 0 on frequency and intensity of intrusiveness and were omitted from the moderation analyses because children's affect could not be coded, leaving 60 families in the final analyses. One child was missing a sociability score and two were missing sustained attention scores at prekindergarten; these values were imputed using multiple imputation procedures and both the imputed data set and raw data set were used in analyses. There was no difference between results from the two data sets, therefore the results based on raw data are shown.

## Results

### *Descriptive Statistics*

Table 14 presents descriptive statistics and bivariate correlations. Mothers and fathers did not differ in the frequency of intrusive episodes,  $t(71) = 0.85$ ,  $p = .40$  and  $t(73) = 2.13$ ,  $p = .04$ , but fathers' intensity was higher than mothers' (see Table 14). On average, fathers exhibited more positive affect than mothers during intrusive episodes,  $t(53) = 2.69$ ,  $p = .01$ , and children exhibited more positive affect when fathers were intrusive than when their mothers were intrusive,  $t(52) = 2.6$ ,  $p = .01$ . Bivariate correlations revealed that mothers' intensity of intrusiveness was negatively correlated with children's sociability (Table 14). Dyadic affect with the mother was positively associated with children's sociability and sustained attention. Fathers' intensity of intrusiveness was negatively associated with children's sustained attention.

### *Multiple Regression Analyses*

Because the frequency of intrusiveness did not relate to child outcomes, only the intensity of intrusiveness was used in multiple regression models to predict children's sociability and sustained attention. Models were

TABLE 14  
CORRELATIONS AND KEY DEMOGRAPHIC CHARACTERISTICS

	1	2	3	4	5	6	7
1. Sociability	1						
2. Sustained attention	0.00	1					
3. Mother intrusiveness (intensity)	-0.27*	0.08	1				
4. Father intrusiveness (intensity)	0.11	-0.26*	-0.12	1			
5. Affective context with M	0.25*	0.41**	-0.21	0.06	1		
6. Affective context with F	0.00	0.13	0.12	-0.35**	0.09	1	
7. Child is a girl	0.17	0.19	-0.08	-0.25*	-0.02	0.24*	1
<i>M (SD) or %</i>	9.14 (1.40)	10.70 (3.20)	2.00 (0.70)	2.30 (0.70)	0.20 (0.90)	0.50 (0.80)	56.80%

*Note.* F = female; M = male; *M* = means; *SD* = standard deviation.

\* $p < .05$ , \*\* $p < .01$ .

TABLE 15  
MULTIPLE REGRESSION ANALYSES PREDICTING SOCIABILITY

	Step 1			Step 2			Step 3		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Model 1									
Father intrusiveness (intensity)	.19	.25	.10	.26	.28	.14	.40	.27	.21
Dyadic affect				.20	.35	.08	.11	.33	.04
Intrusiveness $\times$ dyadic affect				.14	.40	.05	.16	.38	.05
Child gender							.81	.33	.32*
Model 2									
Mother intrusiveness (intensity)	-.47	.26	-.23 <sup>†</sup>	-.36	.26	-.17	-.34	.26	-.16
Dyadic affect				.43	.21	.26*	.44	.21	.27*
Intrusiveness $\times$ dyadic affect				.63	.32	.25*	.67	.32	.26*
Child gender							.45	.36	.16

Note. Child gender is coded as 1 = girl; 0 = boy.

Model 1: Step 1.  $R^2 = .01$ ,  $F(1, 61) = 0.59$ ,  $p = .45$ ; Step 2.  $R^2 = .02$ ,  $F(3, 59) = 0.33$ ,  $p = .80$ ; Step 3.  $R^2 = .11$ ,  $F(4, 58) = 1.79$ ,  $p = .14$ .

Model 2: Step 1.  $R^2 = .05$ ,  $F(1, 57) = 3.15$ ,  $p = .08$ ; Step 2.  $R^2 = 0.16$ ,  $F(3, 55) = 3.41$ ,  $p = .02$ ; Step 3.  $R^2 = .18$ ,  $F(4, 54) = 2.98$ ,  $p = .03$ .

<sup>†</sup> $p < .10$ , \* $p < .05$ .

conducted for mothers and fathers separately for each outcome, resulting in four models in total, each controlling for child gender. We did not control for parental responsiveness as this was not correlated with any of our variables of interest. Neither fathers' intensity of intrusive behaviors nor dyadic affect (father-child) predicted child sociability at prekindergarten (Table 15, Model 1). However, the intensity of maternal intrusive behaviors at 24 months was marginally associated with lower levels of sociability at prekindergarten and accounted for 5% of the variance in children's sociability. When dyadic affect was entered into the model only dyadic affect predicted children's sociability at 60 months (Table 15, Model 2).

Fathers' intrusive behaviors at 24 months predicted lower levels of children's sustained attention at prekindergarten but became nonsignificant when dyadic affect was entered into the model (Table 16, Model 3). The dyadic affect between father and child did not predict sustained attention (Table 16) but the dyadic affect between mother and child did (Table 16, Model 4).

To address our final research question, we added parent-child dyadic affect and its interaction term to the last step of the multiple regression analyses. Positive dyadic affect between children and mothers during the intrusive episode protected children from the potentially negative effects of intrusive behaviors on children's sociability at prekindergarten (Table 15,

TABLE 16  
MULTIPLE REGRESSION ANALYSES PREDICTING SUSTAINED ATTENTION

	Step 1			Step 2			Step 3		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
Model 3									
Father intrusiveness (intensity)	-1.23	0.61	-0.25*	-0.80	.67	-.16	-0.72	.68	-.15
Dyadic affect				1.06	.84	.17	1.00	.85	.16
Intrusiveness $\times$ affective context				1.07	.96	.14	1.08	.96	.15
Child gender							0.54	.84	.08
Model 4									
Mother intrusiveness (intensity)	0.76	0.59	0.16	0.76	.58	.16	0.87	.57	.19
Dyadic affect				1.73	.49	.45***	1.84	.48	.48***
Intrusiveness $\times$ dyadic affect				0.82	.74	.14	0.96	.73	.16
Child gender							1.54	.81	.23 <sup>†</sup>

Note. Child gender is coded as 1 = girl, 0 = boy.

Model 3: Step 1.  $R^2 = .06$ ,  $F(1, 60) = 4.00$ ,  $p = .05$ ; Step 2.  $R^2 = .10$ ,  $F(3, 58) = 2.18$ ,  $p = .10$ ; Step 3.  $R^2 = .11$ ,  $F(4, 57) = 1.73$ ,  $p = .16$ .

Model 4: Step 1.  $R^2 = .18$ ,  $F(1, 55) = 5.85$ ,  $p = .01$ ; Step 2.  $R^2 = .19$ ,  $F(3, 54) = 4.32$ ,  $p = .01$ ; Step 3.  $R^2 = .25$ ,  $F(4, 53) = 4.30$ ,  $p < .01$ .

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\*\* $p < .001$ .

Model 2, and Figure 4); this model accounted for 18% of the variability in children's sociability scores. The association between the intensity of maternal intrusiveness and children's sustained attention was unchanged when the dyadic affect was positive (Model 4).

In summary, neither maternal nor paternal intensity of intrusive behaviors at 24 months was associated with children's sociability and sustained attention, long term at prekindergarten, after controlling for the effects of child gender and dyadic affect. However, the dyadic affect shared between mothers and children was predictive of children's sustained attention and sociability, acting also as a buffer for sociability. This was not the case for the effects of dyadic affect of fathers and children on children's skills.

## Discussion

The goal of this paper was to examine how maternal and paternal intrusive behaviors and dyadic affect at 24 months during parent-child play interactions were associated with children's sustained attention and sociability (i.e., mood regulation, anxiety, and feelings during interactions) at prekindergarten. We contribute to this literature by using an event-based coding scheme that coded for the frequency and intensity of parents'

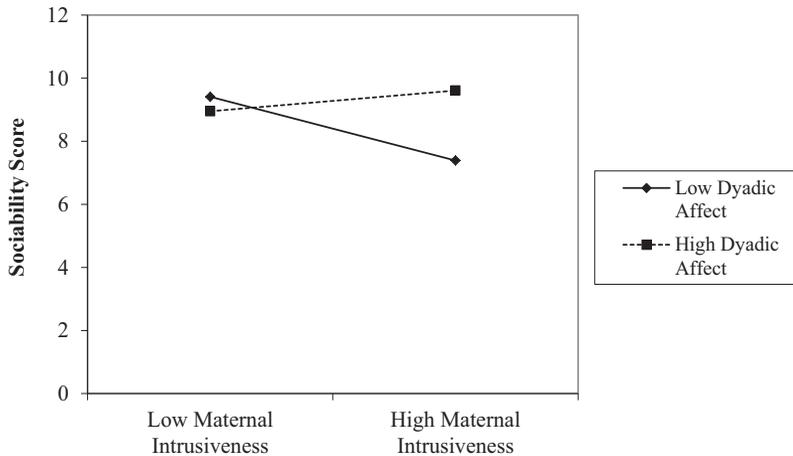


FIGURE 4.—Interaction of mother intrusiveness and mother–child affective context predicting children’s prekindergarten sociability scores.

intrusive behaviors as well as dyadic affect during the interaction to examine how both mothers’ and fathers’ intrusive behaviors and dyadic affect of the parent–child interaction at 24 months were related to children’s social and emotional skills at prekindergarten. The presented study is firmly rooted in developmental ecological systems theory as presented in Chapter I (see Volling & Cabrera, 2019), showing that the microsystem includes fathers and mothers. Even when fathers do not reside with their children (see Fagan et al., 2019), efforts are needed to understand how proximal processes influence children and should include measures that assess the influence of both parents.

We highlight three sets of findings. First, in contrast to past studies that have primarily used global coding, we used event-based coding and found that in our sample of low-income families, although both parents, on average, engaged in *infrequent* intrusive episodes, fathers’ intrusive behaviors *were more intense* but they also exhibited more positive affect than mothers during the intrusive episodes. And, importantly, children exhibited more positive affect with their fathers than mothers during these events. These are important findings because they suggest that differences between mothers’ and fathers’ relationships with their children might be evident in the *quality* and in the meaning of such interactions for children rather than in the frequency (Cabrera, Fitzgerald, Bradley, & Roggman, 2014). Our findings also extend current research by suggesting that mothers *and* fathers engage in intrusive behaviors for different reasons and that whether a particular behavior is interpreted by the child as interfering with autonomy or as being frustrating, really depends on the affective component of that dyad, as shown by Ispa et al. (2004). These findings also lend support to the specificity principle that specific input such as intrusive behaviors are related to specific

outputs such as sociability and for specific dyads, for fathers and not for mothers (Bornstein, 2001).

Second, contrary to our hypothesis we found that over and above the contribution of dyadic affect, the *intensity* of intrusive behaviors between mothers and fathers and their children was not longitudinally related to children's sociability or sustained attention. This finding is consistent with some previous literature (Cabrera et al., 2007) but not with others (e.g., Graziano, Calkins, & Keane, 2011; Keown, 2012; Stevenson & Crnic, 2013a). The inconsistency could be explained by the fact that both Stevenson and Crnic's (2013a) and Keown's (2012) samples were composed of children diagnosed with developmental delays and ADHD, respectively, thus father intrusiveness posed a unique risk for children with difficulties. In contrast, our study was based on a sample of typically developing children growing up in low-income families. For this group, fathers' or mothers' intrusive behaviors appear to pose no risk for the development of social and emotional skills. Studies that have found maternal intrusiveness to be related to low-income children's development (e.g., Graziano et al., 2011) had not controlled for father's intrusiveness or included dyadic affect. Nevertheless, these findings do not imply that intrusive behaviors are good for children but rather that when these behaviors occur in low frequency (as they do in our sample) its intensity is not deleterious when the dyadic affect is considered.

A notable finding is that shared affect (dyadic affect) between parents and children was more important for mother-child interactions than for father-child interactions in its association with both sustained attention and sociability. So that children who shared affect with their mothers during the interaction were more likely to stay focused on a task, regulate their mood and feelings, and exhibit less anxiety than children who did not. These findings support the parental emotional socialization model (Eisenberg et al., 1998) that intrusive behaviors accompanied by emotionally positive messages from the parent may help children regulate their emotional arousal and behaviors.

Contrary to the parental emotional socialization model, dyadic affect was not important when children interacted with their fathers. Children and fathers were more likely to exhibit positive affect (e.g., smile, laugh) during intrusive episodes than children and mothers, but it did not help children to regulate their behaviors. Why? One possible explanation is that in our sample of low-income families there was little variability in the affect exhibited by fathers and children during the intrusive interaction. In other words, almost all paternal intrusive episodes occurred in a positive emotional climate, so there was not enough variability (i.e., negative emotional climate) that could explain the variance in child outcomes.

Third, we found support for our moderation hypothesis and found that the dyadic affect of the mother-child interaction buffered children from the potential negative effects of intrusive maternal parenting behaviors on their social skills. Mothers who were intensively intrusive had children who were more sociable (i.e.,

were alert and interactive) when the mothers smiled or expressed positive affect during the interaction with their children than when she was upset. We did not find this effect for fathers. Paternal intrusive behaviors did not have a negative effect on children's social development and thus dyadic affect was not a moderating factor. These findings merit further investigation.

Overall, unlike past studies (Deater-Deckard & Dodge, 1997), we found that our sample of low-income mothers and fathers exhibited a low frequency of intrusive behaviors. Fathers were more intensely intrusive than mothers, yet children and fathers were more likely to exhibit positive affect during these episodes and thus not affect children negatively. Although the nonsignificant effect between paternal dyadic affect and children's skills might be an artifact of the lack of variability in dyadic affect observed in our sample, our findings show that at least for mothers, the dyadic affect during the interaction was more important than the intrusive behavior per se. For mothers and children, the emotional tone of the interaction had stronger long-term consequences than intrusive behaviors.

An important aspect of this study is the way parental intrusive behaviors and dyadic affect were assessed and coded. We coded both the parent and child's affect during intrusive behaviors using event-based coding, which enable us to de-couple, in a sense, the emotional response from the actual behavior. This captured the parent (mother or father) and child's affective response to the episode of parental intrusiveness. This is a significant strength over global coding, which assesses intrusiveness and affect during an interaction but does not capture the contingency between intrusiveness and affect. The utility of different approaches used to study father-child interactions is exemplified in this chapter and others in this issue, including Volling et al. (2019), Lee et al. (2019), Feinberg et al. (2019), and Piskernik and Ahnert (2019). Collectively, these studies make the case to build the science on father-child relationships, researchers should use multiple methods to study father-child interaction. Moreover, as we argue here and elsewhere in this issue (see Feinberg et al., 2019; Lee et al., 2019), fathers are part of families, which include mothers and children, thus, studies of fathers should use a family systems approach, one of the core issues discussed by the working group (see Cabrera & Volling, 2019), that clearly situates fathers in a network of relationships that are interdependent but also unique.

### *Limitations*

There are several limitations that should be considered when interpreting the findings of this study. First, data come from a small convenience sample of low-income minority parents and their toddlers, and thus the generalizability of findings is limited. Second, the sample size was too small to include many controls and maintain statistical power to

detect effects. Further, we were unable to control for both parents' behavior in the same model and ran separate models for mothers and fathers, which run the risk of increasing type II error. As a result, we cannot determine whether the parent's intrusiveness is associated with children's sustained attention or social skills over and above the influence of the other parent.

#### *Future Directions and Conclusions*

An important next step is to replicate these findings with larger and more diverse samples and with mothers and fathers using event-based coding schemes that can account for the affective context of the interaction. The findings of this study suggest that while both parents may engage in similar behaviors, the impact on children may be different. This conclusion is also echoed in Volling et al. (2019), who found evidence of an activation profile of fathering and mothering. Our findings also point to clear questions for future studies: Are negative parenting behaviors attenuated by a strong coparenting relationship (see Lee et al., 2019, and Feinberg et al., 2019)? How do we assess intrusive behaviors in nonresident fathers (see Fagan et al., 2019)? Why would paternal intrusive behaviors that are not necessarily supporting children emotionally not increase children's stress and negative affect as hypothesized in the literature (Blair & Diamond, 2008)?

## VII. Conceptualizing and Measuring Low-Income, Nonresident Fathers' Contact With Children

Jay Fagan, Rebecca Kaufman, and W. Justin Dyer

**Abstract** This study examined whether different types of nonresident fathers' contact with children (e.g., face-to-face contact, telephone/social media contact) are part of the same construct and whether this contact is statistically distinct from engagement in child-related activities. Exploratory (EFA) and confirmatory factor analyses (CFA) were conducted with a sample of 421 low-income nonresident U.S. fathers with children ranging from ages 1 to 18 years. Across child age groups, EFAs and CFAs revealed the best fit was a two-factor solution. The first factor (caregiving-contact) included face-to-face contact, nights spent with the child, and several engagement items. The second factor (communication-contact) included telephone/social media contact as well as several engagement items that did not require physical presence: praising the child and telling the child you love him/her. We also examined the predictive validity of these measures in relation to father-child relationship quality, and fathers' parenting self-efficacy and satisfaction. Communication-contact was significantly associated with all three of our predictive validity outcome measures, whereas caregiving-contact was not significantly associated with any outcomes. These findings will be helpful in providing a more accurate measurement of low-income nonresident fathers' involvement with children, which is one of the core issues recommended by the working group.

Numerous studies of nonresident fathers include assessing the amount of contact fathers have with their children because researchers have found that when nonresident fathers have more contact with their children, they are more likely to pay child support (Amato, Meyers, & Emery, 2009) and their children are less likely to live in poverty (Nepomnyaschy & Garfinkel, 2011) and have behavior problems (Coley & Medeiros, 2007). These findings are striking because a considerable portion of nonresident fathers have little contact with their children (Jones & Mosher, 2013). Data from the 2006–2008 National Survey of Family Growth indicated that 21% of nonresident fathers saw their children only “several times” in the year prior while 27% of nonresident fathers did not see their children at all (Livingston & Parker, 2011).

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Corresponding author: Jay Fagan, School of Social Work, Temple University, 1301 Cecil B. Moore Ave., Philadelphia, PA 19122, email: jfagan@temple.edu

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Despite the importance of nonresident fathers' contact with children, there are few studies on how best to assess this construct and whether different types of contact (e.g., face-to-face contact, telephone contact) should be combined to form a single contact measure. The Fragile Families and Child Wellbeing Study measured nonresident father contact using a single item (number of days the father saw the child in the past 30 days; Choi, Palmer, & Pyun, 2014; Nepomnyaschy & Garfinkel, 2011) and the National Survey of Family Growth only included the frequency of visits to the child (Livingston & Parker, 2011). The Canadian General Social Survey asked about the number of nights fathers spent with the child in the past 30 days (LeBourdais, Juby, & Marcil-Gratton, 2001) and Hook and Courtney (2013) measured the frequency of overall contact (with no specificity about the types of contact) in the past 12 months. Others examined telephone and letter contact (Stewart, 1999) and email contact (Viry, 2014). Some researchers combined different types of contact (e.g., face-to-face and telephone) forming a global contact index (e.g., Hofferth & Pinzon, 2011). Because of the various ways nonresident father contact has been measured, it is difficult to know which aspects of contact are important for children's development, which should be included in future studies, and whether all aspects can be combined into a single index of contact. Further, some researchers have suggested that nonresident fathers' engagement in face-to-face contact with their children reflects the same underlying construct reflected in engagement in child-related activities (Coley & Medeiros, 2007; Hawkins, Amato, & King, 2007).

The purpose of this paper was to examine three new measures of nonresident father contact (face-to-face contact, telephone/social media contact, nights spent with child) and test whether these measures and six measures of child engagement (hugging child, eating meals together, going on walks, praising the child, telling the child you love him/her, visiting family) were part of the same underlying construct. We also examined the predictive validity of these new measures in relation to father-child relationship quality, fathers' parenting self-efficacy, and parenting satisfaction. The research has important implications for research on fathering because it provides a new means of assessing father involvement for nonresident fathers (see core issues in Cabrera & Volling, Chapter VIII, this issue). Having valid measures of nonresident father contact is important because a growing number of fatherhood programs in the United States target *low-income, nonresident* fathers who are primarily *unmarried* in order to increase father involvement (Waller, 2002). Without validated measures of contact and engagement, these programs are unable to assess program effects on fathers and families, even though guidelines from most funding agencies require them to evaluate the effectiveness of their programs (Waller, 2002).

### Theoretical Considerations

The current study with a focus on nonresident fathers fits within the developmental ecological systems perspective in Chapter I (Volling & Cabrera,

2019) by acknowledging that fathers are still present and engaged in children's lives by maintaining ties across different ecological systems levels. The quality of nonresident fathers' involvement is often more important than the amount of time (quantity) or types of involvement (Adamsons & Johnson, 2013), but quality may have little effect on fathers and children if fathers do not have opportunities to spend time with children. The present study used the Lamb, Pleck, Charnov, and Levine (1987) typology of father involvement that includes three dimensions: accessibility, engagement, and responsibility. This framework has been used extensively by fatherhood programs to assess fathers' parenting (Fagan & Kaufman, 2015) so was also used here. Researchers have suggested that contact is interchangeable with accessibility when applied to nonresident fathers (Choi et al., 2014; Shannon, Cabrera, Tamis-LeMonda, & Lamb, 2009). Accessibility is defined as the time the father is available to the child whether or not he is interacting directly with the child. Engagement refers to father-child shared interactions and responsibility refers to a father's organizing and planning activities and provision of resources to a child. In the present study, we included nonresident father contact under *Accessibility*, father-child shared interactions under *Engagement*, and father's organizing and planning activities and provision of resources to a child under *Responsibility* (Lamb et al., 1987).

The developmental ecological systems perspective presented in Chapter I also helps conceptualize nonresident fathers' involvement with children. An important tenant of this perspective is that parent-child relationships are embedded in networks of systems that influence all aspects of parenting (Bronfenbrenner, 1989). Importantly, many low-income nonresident fathers have regular face-to-face contact with their children, but frequent contact often occurs in the context of maintaining a positive coparenting relationship with the child's custodial mother or having support from one's network to help fathers with parenting (Carlson, McLanahan, & Brooks-Gunn, 2008). For other fathers, lack of support from mother or others, as well as the fathers' own risky behaviors, prevent the father from having regular face-to-face contact (Castillo & Sarver, 2012). Many fathers may have to resort to alternate methods of involvement such as telephone calls or social media. Fathers often combine both face-to-face and telephone contact as a means to maintain involvement with their children (Leite & McKenry, 2006). Given these differences in nonresident fathers' contact with their children and the fact that contact may vary based on the social ecologies of these men, validation studies examining how father-child relationships and fathers' parenting attitudes are related to measures of contact are clearly needed.

Many nonresident fathers maximize their child contact by engaging in child-related activities when together with children (Hawkins et al., 2007), a point that is also emphasized by Piskernik and Ahnert (2019). If, in fact, contact and engagement with children typically co-occur, then these types of involvement may be measuring the same underlying construct. To test the hypothesis that contact and engagement are measuring the same construct,

we conducted exploratory factor analysis (EFA) and CFA with contact and engagement items.

Fathers' contact and engagement in activities with children are likely to vary based on the child's age (Dyer, Day, & Harper, 2013). The contact with young children is likely to be different from the contact with adolescents. In order to ensure consistency, we only included items of contact and engagement that were likely to occur across child ages (e.g., hug child). Although fathers often play with children (Cabrera, Fitzgerald, Bradley, & Roggman, 2014), the types of items used to assess play vary based on the child stage of development. In the current analyses, separate EFAs and CFAs were conducted with fathers of children across three ages: early childhood (1–5 years), middle childhood (5.1–12 years), and adolescence (12.1–18 years).

### Aims and Hypotheses

To summarize, the present study examined three types of nonresident father–child contact (face-to-face, telephone/social media, and spending nights) and fathers' engagement with the child to determine their underlying structure. Although engagement and contact likely load together (see Hawkins et al., 2007), we are not aware of previous research suggesting whether there will be multiple factors or a single factor. Thus, we explored the potentially multidimensional nature of these constructs. In assessing the validity of the factors, we expected that the contact and engagement factors would be positively correlated with the fathers' parenting self-efficacy, parenting satisfaction, and father–child closeness (Amato et al., 2009; Fitzgerald, Roy, Anderson, & Letiecq, 2012). These variables were selected because they have been found to be related to fathers' child contact and engagement (Walker, Reid, & Logan, 2010). Self-efficacy and satisfaction are components of parenting self-esteem (Johnston & Mash, 1989), which is a major correlate of competent parenting behaviors (Jones & Prinz, 2005) and is closely linked to healthy child adjustment (Coleman & Karraker, 2003). Feinberg et al. (Chapter II, this issue) also considered how daily experiences of stress predicted fathers' and mothers' personal well-being and closeness with their infants. Father–child closeness is a measure of the father's perception of the quality of his relationship to his child. Closeness is important to measure because many low-income nonresidential fathers report wanting to have closer relationships with their children (Waller, 2002).

### Method

A convenience sample of 624 low income, nonresident fathers were recruited from six northeastern and one southern U.S. city. Recruitment took

place across 14 different fatherhood programs ( $n = 213$  fathers) designed to increase fathers' involvement with their children, and various other sites (grocery stores, barbershops, and churches) in high-poverty neighborhoods ( $n = 373$  non-program fathers) between January 2015 and June 2015. Program and non-program fathers were targeted so that the new measures would be used by researchers conducting studies in both contexts. Fathers were required to (a) be at least 18 years of age and (b) have at least one nonresidential, biological child between the ages of 1 year and 18 years old. Nonresidence was defined as not living in the same household all or most of time. Fathers with infants were not included ( $n = 203$ ) because few parents use social media (e.g., cell phones) to communicate with infants (Rideout, 2013). The final analytic sample included 421 nonresidential fathers with children between the ages of 1 and 18 years of age. Fathers were paid \$30 for participation.

Fathers were interviewed in fatherhood programs or at the researchers' university. Interviewers read the survey forms allowed to the father and filled in his responses. We intentionally targeted data collection to obtain equal numbers of toddlers/preschoolers (ages 1–5), children in middle childhood (ages 5.1–12), and adolescents (ages 12.1–18). This approach yielded data on fathers of 133 toddlers/preschoolers, 130 children in middle childhood, and 158 adolescents. Fathers ranged in age from 18 to 72 (median of 38.27; demographic table available from authors). Seventy-eight percent of the sample were single and never married; 41% were unemployed. Most fathers were African American (72.7%), 11.9% were Hispanic, 11.4% were non-Hispanic, White, and 4% reported “other” race. Nearly half had a high school or General Education Diploma (GED, 49.9%) and 19.7% had not completed high school or obtained a GED. Forty-three percent had only one biological child, with an average of  $M = 2.27$  children.

## Measures

### *Father Contact*

Three items were used to assess contact: (a) father–child *face-to-face contact* (“In the past month how often did you have face-to-face, in-person contact with your target child on average?”); (b) father–child *telephone/social media contact* (“In the past month how often did you talk on the phone, send letters, cards or texts, use FaceTime or Facebook with your target child?”); and (c) *number of nights* the father spent in the same residence as the target child (“During the past month, how often did [target child] spend nights together with you?”). Responses ranged from 1 = *every day or nearly every day* to 7 = *not at all*.

### *Father Engagement*

Six items from the Fatherhood Research and Practice Network Father Engagement Scale (Dyer, Kauffman, Fagan, Pearson, & Cabrera, 2018) were

selected that reflected fathers' engagement in activities regardless of the child's age and included predominantly activities pertaining to physical care and support (e.g., hug, eat meals, visit family, take a walk, praise, and tell child you love him/her). Fathers were asked how often they engaged in each activity with the target child during the last month (1 = *never or less than 1 time per month* to 8 = *every day or almost every day*).

#### *Variables for Demonstrating Predictive Validity*

The *Parenting Self-Efficacy Scale* is a new seven-item measure developed for use with nonresidential fathers (Fagan, 2015a). This measure includes several items that are not included in other measures of self-efficacy (e.g., "I am good at keeping my promises to my child") and assesses how competent fathers feel in their role as a parent. Responses were rated on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree* ( $\alpha = .92$ ).

A three-item measure of *parenting satisfaction* (the NRI-Relationship Qualities Version; Furman & Buhrmester, 2009) assessed father's satisfaction with his parenting role (e.g., "How happy are you with the way things are between you and your target child?") using a 5-point scale ranging from 1 = *not satisfied* to 5 = *extremely satisfied* ( $\alpha = .74$ ).

Father-child closeness was measured with the Child-Parent Relationship Scale (Short Form, Pianta, 1992). The scale includes 15 items (e.g., "I share an affectionate, warm relationship with my child") rated on a 5-point scale, 1 = *definitely does not apply* to 5 = *definitely applies*, and has been validated for children between the ages of 3-12 years ( $\alpha = .89$ ).

#### *Controls*

The current study controlled for factors shown to covary with our predictive validity variables in previous studies, including fathers' personal challenges, involvement in making decisions for children, coparenting quality, unemployment, participation in a fatherhood program, and target child's age and child's sex (Dyer et al., 2018). We control for these variables so that the effects of fathers' contact and engagement on the validity variables is not overestimated. Fathers' *personal challenges* over the past month were measured with a 27-item scale asking fathers if they experienced challenges such as incarceration, inability to pay bills, and working too many hours (Fagan, 2015b). Fathers' responses (0 = *not a challenge*, 1 = *father reports challenge*) were summed to construct a measure of a total number of personal challenges ( $\alpha = .90$ ).

Fathers' participation in making a decision regarding the child was measured with *Decision-Making Responsibility*. This six-item measure was validated using the sample of fathers in this data set (Fagan, Dyer, Kaufman, & Pearson, 2017). Fathers were asked who makes decisions around topics such

as school and discipline, using a 3-point scale: 1 = *the mother of the child (or another adult) always makes the decisions*; 2 = *you and the mother of the child (or another adult) share making the decisions*; or 3 = *you always make the decisions* ( $\alpha = .82$ ).

Two dimensions of coparenting quality were assessed: *undermining* and *alliance*. These measures were validated on the sample obtained for this study (Dyer et al., 2017). Responses ranged from 1 = *strongly disagree* to 5 = *strongly agree*. Three items assessed undermining (e.g., “the mother makes jokes or sarcastic comments about the way I am as a parent”;  $\alpha = .95$ ). Five items addressed alliance (e.g., “The mother of the child and I have the same goals for [target child]”;  $\alpha = .98$ ).

Other controls included fathers’ unemployment (1 = *unemployed*, 0 = *employed*), education (6-point scale ranging from less than high school to a graduate degree), father’s age, number of biological children, involvement in a fatherhood program (1 = *enrolled in a fatherhood program*, 0 = *not enrolled in a fatherhood program*), target child’s age, and child sex (1 = *male* and 0 = *female*). Father’s race/ethnicity was assessed through four mutually exclusive variables: Black (reference group), non-Hispanic White, Hispanic, and other.

### *Plan of Analysis*

First, we randomly selected half of all cases to conduct EFA and the other half of the cases to conduct CFA. EFA was used to explore the underlying factor structure of observed variables (contact and engagement items), that is, to determine the number of factors within each age group (eigenvalues above 1.0 being considered evidence for a factor), model fit, and item loadings. After determining the number of factors and which items loaded the factors (greater than .40), we then conducted CFA to replicate the factors and factor structure. Mplus 7.4 was used for all EFAs and CFAs. Model fit indices included the RMSEA (<.06 good fit) and the CFI ( $\geq .95$  good fit; Hu & Bentler, 1999). Little (2013) suggests more generous cutoffs for the RMSEA (>.10 is poor, .10–.08 is mediocre, <.08 is acceptable). The “categorical” option in Mplus was used given item response categories were ordered categories.

Because contact and engagement in activities with children may vary based on the child’s age, as noted above, we next split the sample into child age groups and randomly selected half the cases to conduct EFA and half the cases to conduct CFA. To address predictive validity, regression analyses were conducted with each of the three criterion variables: parenting satisfaction, self-efficacy, and father–child closeness by regressing each on the factor scores for the contact and engagement measures (to remove measurement error) and controls. Multiple imputation with 20 imputations was conducted to handle missing data before running regressions.

TABLE 17  
CONFIRMATORY FACTOR ANALYSES BY AGE GROUP AND FOR ALL CHILDREN

Variables	Target Child Ages 1–18 ( <i>N</i> = 211)		Target Child Ages 1–5 ( <i>n</i> = 68)		Target Child Ages 5.1–12 ( <i>n</i> = 65)		Target Child Ages 12.1–18 ( <i>n</i> = 79)	
	Estimate	<i>SE</i>	Estimate	<i>SE</i>	Estimate	<i>SE</i>	Estimate	<i>SE</i>
Factor 1								
Face-to-face contact	.891*	.016	.767*	.049	0.905*	.025	.881*	.030
Overnights	.701*	.036	.788*	.050	0.625*	.069	.526*	.059
Hugged	.984*	.008	.997*	.013	0.976*	.017	.979*	.012
Had a meal	.925*	.013	.971*	.013	0.925*	.023	.911*	.027
Visited family	.835*	.022	.859*	.034	0.888*	.030	.843*	.034
Took on a walk	.904*	.015	.914*	.024	0.875*	.032	.928*	.022
Factor 2								
T/SM contact	.693*	.040	.514*	.084	0.683*	.074	.752*	.048
Praise	.957*	.016	.935*	.065	0.927*	.028	.943*	.024
Told love	.962*	.015	.926*	.053	1.013*	.031	.994*	.023
RMSEA	.099		.124		0.034		.126	
CFI	.995		.995		0.999		.992	

Notes. T/SM contact = telephone/social media contact. Variable values are standardized.

\* $p < .001$ .

## Results

### *Children 1-18 Years Combined*

EFA model fit for a one-factor solution was not strong (CFI = .979, RMSEA = .205), but model fit for a two-factor solution was acceptable (CFI = .998, RMSEA = .077; EFA table with factor loadings is available from authors). Eigenvalues were 6.50 and 1.05 for the two factors. The first factor (items loading above .40) consisted of face-to-face contact, nights spent with child, hugs, eats meals, visits family, and goes on walks (labeled “caregiving-contact”) and the second factor included telephone/social media contact, praises, and expresses love to child (labeled “communication-contact”). The CFA model for caregiving-contact and communication-contact was acceptable (CFI = .995, RMSEA = .099; see Table 17).

### *Early Childhood (Ages 1–5)*

EFA model fit for a one-factor solution was poor (CFI = .985, RMSEA = .208). Fit for a two-factor solution was acceptable (CFI = .999, RMSEA = .067) with eigenvalues of 6.02 and 1.35 for the two factors. The same two factors found in

the combined 1–18 sample (caregiving-contact and communication-contact) were found for early childhood; items loaded similarly in both samples. The CFA model fit for caregiving-contact and communication-contact, however, was poor (CFI = .995, RMSEA = .124). When the errors of two items, telephone/social media contact and expressing love, were correlated, the model fit was acceptable (CFI = .999, RMSEA = .064).

#### *Middle Childhood (Ages 5.1–12)*

Model fit for a one-factor solution in the EFA was poor (CFI = .962, RMSEA = .243) and was improved with a two-factor solution (CFI = .993, RMSEA = .127), with eigenvalues of 6.16 and 1.26. The same two factors found in early childhood (caregiving-contact and communication-contact) were found for middle childhood and items loaded similarly across the two ages. When the CFA was conducted to confirm the two-factor structure on the second half of the age group, model fit for caregiving-contact and communication-contact was good (CFI = .999, RMSEA = .034; see Table 17).

#### *Adolescence (Ages 12.1–18)*

Model fit for a one-factor solution using EFA was poor (CFI = .988, RMSEA = .176), whereas model fit for a two-factor solution was good (CFI = 1.00, RMSEA = .041); eigenvalues were 6.81 and .90 and the two factors were the same as factors identified in early childhood and middle childhood, with all loadings above .40 on each of the two factors. The CFA model for caregiving-contact and communication-contact was poor (CFI = .992, RMSEA = .126; see Table 17), but improved when correlating errors for the items, nights with child and face-to-face contact (CFI = .996, RMSEA = .09).

#### *Predictive Validity Regression Analyses*

Because the two factors of caregiving-contact and communication-contact were consistent across age groups, the predictive validity analyses were conducted with the combined sample (see Table 18). To remove measurement error, factor scores for caregiving-contact and communication-contact were used as predictors in regression analyses with parenting satisfaction, parental self-efficacy, and closeness as the criterion variables. There was no significant prediction of caregiving-contact for parenting satisfaction, self-efficacy, or closeness. However, communication-contact significantly predicted all three (see Table 18). As a follow-up, we examined the interactions between target child age and the factor scores for caregiving-contact and communication-contact in regressions to confirm the prediction held across age groups and found no significant interaction effects. Regarding control variables,

TABLE 18  
REGRESSION OF FATHER CONTACT FACTORS AND CONTROLS ON FATHERING OUTCOMES ( $N = 421$ )

Variables	Satisfaction		Self-Efficacy		Father-Child Closeness	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Constant	1.96***	.54	16.13***	3.06	19.79***	2.64
Target child's age	-0.03	.01	-0.01	0.07	-0.06	0.06
Undermining	0.04**	.01	0.30***	0.08	0.23***	0.07
Coparenting alliance	-0.01	.02	0.00	0.09	0.01	0.07
Father's age	0.01	.01	-0.01	0.03	0.05	0.03
Father's education	-0.04	.05	0.00	0.28	0.09	0.24
Hispanic	-0.16	.16	-1.21	0.87	-0.75	0.75
White	-0.46**	.17	-0.40	0.91	-1.19	0.78
Other race/ethnicity	-0.05	.25	1.03	1.38	-0.84	1.20
Number of biological children	-0.04	.04	-0.21	0.20	0.05	0.18
Total personal challenges	-0.01	.02	-0.03	0.10	0.05	0.08
Responsible Fatherhood Program	0.26*	.11	0.40	0.59	1.30*	0.51
Unemployed	0.10	.11	1.34*	0.62	-0.31	0.53
Responsibility	0.09***	.03	0.58***	0.15	0.47***	0.12
Caregiving—contact	0.08	.05	0.01	0.26	-0.09	0.23
Communication—contact	0.27***	.06	0.64*	0.33	1.20***	0.28
<i>F</i>	18.92***		9.71***		12.38***	
<i>R</i> <sup>2</sup>	0.39		0.25		0.32	

*Note.* Satisfaction = parenting satisfaction; Self-efficacy = parenting self-efficacy; SE = standard errors. Reference group for race/ethnicity is African American.  
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

father responsibility and fathers' reports of maternal undermining were positively associated with satisfaction, self-efficacy, and closeness.

## Discussion

This study examined whether different types of nonresident fathers' contact with children (e.g., face-to-face contact) was represented by a single construct and whether nonresident father contact was distinct from engagement in child-related activities or included child-related activities, as some scholars have suggested (Hawkins et al., 2007). In a combined sample of children ages 1–18, and across age groups, EFAs uncovered two factors of caregiving-contact and communication-contact that were confirmed on half the sample with CFAs, providing strong support that nonresident father involvement is a multidimensional construct. The first factor, caregiving-contact, included face-to-face contact, nights spent with a child, and several child engagement items (e.g., eats meals with child), each requiring the father's physical presence with the child. The second factor, communication-contact, included

telephone/social media contact as well as several engagement items that did not require physical presence (praising child and telling the child you love him/her), which could be accomplished through verbal/text communication with the child from a distance in order to maintain the father–child relationship. Our findings appear to be consistent with other studies (e.g., see also Piskernik and Ahnert’s study of resident fathers in this issue) that have found patterns of father involvement with children that include both engagement in child activities and affective components of parenting (e.g., telling the child you love him/her).

These results are important for several reasons. Nonresident fathers often have limited time to spend in face-to-face contact with their children, but when they do, there may be a greater likelihood they are also engaged in child-related activities. Not surprising, then, behaviors such as hugging the child, eating a meal together, and going for a walk occur during fathers’ face-to-face contact and spending nights together. Thus, one aspect of nonresident father contact combines physical contact and child engagement items when nonresident fathers are physically present with their children.

However, there is another form of contact that involves fathering at a distance and is not in the presence of the child, referred to here as communication-contact (also see Parke & Cookston, 2019). Contact via telephone/social media likely occurs when fathers simply cannot be together with the child. There may be a substantial time between visits with the child, and communication-contact is a way to maintain contact and the father–child relationship. Moreover, because telephone/social media contact allows fathers and children to communicate from a distance, it is not surprising that this type of contact also includes other forms of social and affective communication (e.g., praise child) that allows fathers and children to form and maintain close and caring relationships, not dependent solely on physical contact. Given this, researchers are advised not to combine items reflecting these forms of distance communication with items that rely on fathers’ face-to-face contact or spending nights with the child. Fathers can still praise and tell their child they are loved even if they are not physically present.

Findings are also consistent with research on resident fathers, showing that caregiving and communication are two distinct forms of father involvement (Ahmeduzzaman & Roopnarine, 1992). Further, the regression analyses addressing predictive validity of the two factors suggested that communication-contact significantly predicted all three of our validity outcome measures (parenting satisfaction, self-efficacy, father–child closeness) even after controlling for variables such as coparenting quality, fathers’ participation in making decision about the child, and personal challenges, whereas caregiving-contact was not significantly associated with any outcomes. One possible explanation for the association between communication-contact and quality of the father–child relationship may be that fathers who maintain high levels

of communication are more motivated to maintain a close relationship with the child. Their higher level of satisfaction and self-efficacy may occur because they take pride in maintaining contact with the child even when they are not scheduled to visit the child. On the other hand, caregiving-contact may occur when fathers are obligated to spend time with the child and it is more likely to be controlled by the mother.

### *Limitations*

Fathers reported on their own involvement with the child and their parenting attitudes and relationships with children. This shared method variance may inflate the associations between these variables. Also, contact between fathers and children may be brief or extensive, and this is not accounted for in our contact measure. That father-child contact loads on the same factors as father engagement may be a function of the time scales used to measure the items. For example, face-to-face contact and nights spent with the child may load on the same factor with eating meals and hugging the child because we are asking about the number of days in which these interactions take place. It is common practice to ask about the number of days that nonresident fathers engage in child-related activities (e.g., Nepomnyaschy & Garfinkel, 2011). Yet, we recognize that some engagement behaviors may take place multiple times during the course of a visit, and variability in the occurrence of those engagement activities may be obscured if the father is only asked to indicate the number of days in which the activity took place. Another limitation is the higher RMSEA for the preschool and adolescent groups. Correlating certain errors ameliorated this. With younger children (i.e., preschoolers), saying “I love you” may be a more natural part of the not in person interaction and given adolescents’ busier schedules, nonresident fathers may see older children less outside of overnight stays. In addition to the limitations mentioned above, we also note that fathers in our study were primarily African American. Studies have shown that nonresidential African American fathers are significantly more likely to share responsibility and engage in positive coparenting with mothers than White or Hispanic fathers (Calvina, Jones, & Carlson, 2014), yet it is not clear whether these racial-ethnic differences also apply to caregiving-contact or communication-contact with children. Conceivably, cultural differences may influence the meaning these parenting behaviors have for families.

### *Future Directions*

We noted above that contact and engagement items may have loaded on the same factors because we asked about the number of days in which these interactions took place. Researchers should continue to explore whether contact and engagement with children are distinct or similar constructs. Future research should consider inquiring how often or how much time the nonresident father engages in specific parenting behaviors (e.g., child activities) on those days when he has face-to-face contact and spends nights with the child. Consistent with the core issue

that fathers are part of the diverse family and social systems (see Cabrera & Volling, Chapter VIII, this issue), researchers should replicate the findings of this study with other populations of fathers (e.g., Hispanic fathers).

## Conclusion

Results of the present study showed that researchers should consider the ecological context of nonresident fathering and its implications for measuring father involvement. Some low-income nonresidential fathers maintain good relations with the mother and are able to have frequent face-to-face contact with the child. Other fathers have a much more difficult time seeing children and may depend on other forms of contact such as telephone and social media contact. Our findings suggest that fathers may be able to maintain positive relationships with children and have positive parent parenting attitudes when they make efforts to maintain communication-contact with the child. Most importantly, the close relationships and positive parenting attitudes that were found to be associated with frequent communication-contact may lead to children showing better developmental outcomes. Researchers can help fatherhood programs serving nonresident fathers by providing guidance on measures such as those found here because they are brief and applicable to fathers with children ages 1–18 years. In addition, the extent to which programs are successful in affecting change in fathers' caregiving-contact or communication-contact may be obscured if contact and engagement measures are treated as a single component, rather than as multi-dimensional components, of nonresident fathers' involvement with children.

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## VIII. Moving Research on Fathering and Children's Development Forward: Priorities and Recommendations for the Future

*Natasha J. Cabrera and Brenda L. Volling*

**Abstract** Guided by developmental ecological systems theory, the studies in this issue emphasize the immediate context of father–child relationships, the micro-system, including relationships between parents and children (resident or not) and between parents (e.g., coparenting). We first highlight the collective contributions of the studies in this monograph to the field of fatherhood research, including discussions about improved conceptualizations, methodological advances, and measurement issues. Then, we highlight core issues that cut across these studies and should be a guide for future research. We close with limitations and future directions.

The current set of empirical papers were organized within a developmental ecological systems framework to illustrate several innovative methodological approaches for advancing research on father–child relationships (Bronfenbrenner & Morris, 2006). This approach assumes that the father–child relationship is embedded in a network of social relationships, with the relationship between parents being the most proximal and thus consequential for children's development (Cabrera, Fitzgerald, Bradley, & Roggman, 2014; Fagan, Day, Lamb, & Cabrera, 2014). The studies represented in this monograph were not meant to represent an exhaustive list, but rather, they offered innovative ways to assess the interactions and activities between fathers and children and present new analysis techniques for fathers and mothers as part of an ecological and family systems perspective.

All the studies in this issue emphasize the immediate context of father–child relationships, the microsystem, including relationships between parents and children (resident or not) and between parents (e.g., coparenting). Although we have come a long way since fathers were the invisible parent in developmental research, the empirical evidence linking father–child and mother–child

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Corresponding author: Natasha J. Cabrera, Department of Human Development and Quantitative Methodology, University of Maryland, 3304E Benjamin Building, College Park, MD 20742, email: ncabrera@umd.edu; or Brenda L. Volling, Department of Psychology, University of Michigan, 530 Church Street, Ann Arbor, MI 48109, email: volling@umich.edu

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interactions to children's development is still emerging, and the studies presented in this issue make important contributions in moving the field forward. In addition to being conducted within a developmental ecological systems framework, several studies (e.g., Karberg, Cabrera, Malin, & Kuhns, 2019) illustrated connections between parental emotional socialization (Eisenberg, Cumberland, & Spinrad, 1998), parent-child relationships, and children's social and attentional outcomes. Other studies (Volling et al., 2019) tested specific theories about fathers that emphasized that fathers, more so than mothers, are children's playmates and protectors and as such, may be more likely to engage in more direct and challenging parental behaviors that encouraged children to take risks (Grossmann et al., 2002; Majdandžić, de Vente, & Bögels, 2016; Paquette, 2004). The nonlinear dynamical systems (Barton, 1994) approach adopted in Chapter V (Piskernik & Ahnert, 2019) links with family systems and transactional theories (Cox & Paley, 2003; Sameroff, 2000), whereas a focus on coparenting (Lee et al., 2019) and daily stressors in and outside the family (Feinberg et al., 2019) aligns well with ecological theories of development (Bronfenbrenner & Morris, 2006).

In this chapter, we first highlight the collective contributions of the studies in this monograph to the field of fatherhood research, including discussions about improved conceptualizations, methodological, and measurement. Then, we highlight core issues that cut across these studies and should be a guide for future research. We close with limitations and future directions.

#### Collective Contributions of the Chapters

The empirical studies presented in this issue moved the field forward in several ways by taking a developmental ecological systems approach that firmly situated fathers within the family system, and that offered ways to improve the measurement of father-child relationships, and their longitudinal associations, even though few studies collect these data. To this end, this monograph presents methodological innovations in assessing and testing models of father involvement.

#### *Conceptualizing Fathers in the Context of the Family*

The big conceptual elephant in the room is the operationalization of what men do in their role as fathers. There is great diversity in the terms researchers use to refer to what fathers do, which emanate from different disciplinary traditions. Fathering, father involvement, and father engagement are among some of the commonly used terms. Although some researchers use terms such as mothering, rarely are terms such as mother involvement or mother engagement used to describe what mothers do in their roles as mothers. In fact, most studies on parenting include mostly mothers, sometimes controlling for the effect of fathers, but others do not

consider fathers at all. In this monograph, we take the position that parenting is a different construct from “mothering” or “fathering” because it encompasses the behaviors that fathers and mothers engage in as they rear their children. These parenting behaviors may be done mostly by mothers, mostly by fathers, or done equally by both parents, as well as other caregivers responsible for socializing children. Empirical evidence presented in this monograph showed that although fathers and mothers might engage in similar behaviors (e.g., being intrusive), the impact on children's development may also be unique and independent of the other parent (Karberg et al., 2019). Further, parenting constructs that are theorized to be unique to fathers' style of interacting with their children (e.g., activation) may also be descriptive of interaction styles used by some mothers (Volling et al., 2019), underscoring the importance of including both mothers and fathers in the same study rather than focusing on and assuming that only one gender of parent specializes in specific parenting behaviors. Even though fathers were more likely to engage in activation than mothers, it was clearly not unique to fathers. Elsewhere we have argued (see Cabrera et al., 2014) that fathers and mothers engage in similar, different, and complementary behaviors that vary in intensity, quality, and frequency. As the developmental ecological systems perspective emphasizes, the impact of fathering and mothering on children is context dependent and may very well change over time as parents occupy and interact with others from different ecological systems levels. Thus, the field needs more innovative theoretical thinking, as well as more ways of assessing novel parenting constructs that can define the *unique* nature of fathering and mothering in the context of the family, the community, the neighborhood, and the broader cultural-social context.

#### *Improved Approaches to Measure Father–Child Relationships*

An important impediment to advancing research on how fathers matter for children's development is the lack of observational data on father–child interactions across ethnic and SES groups. The inclusion in this issue of the multiple ways father–child interaction can be observed and coded, enabled for closely examining developmental effects on children. For example, the study presented in Chapter VI (Karberg et al.) extended prior literature on the associations between intrusive parenting behaviors and children's development by reporting the development of an event-based coding scheme to assess the frequency and intensity of maternal and paternal intrusive behavior, as well as the positive and negative effect of both parent and child (i.e., dyadic affect) during an intrusive episode. These authors reported that there were no differences between mothers and fathers in the frequency of intrusive episodes; although fathers were more intensely intrusive, they exhibited more positive affect during intrusive episodes than mothers. This finding suggests we may need to rethink how intrusive behavior is defined and applied to parent–child interactions, and ultimately,

what it means for children. Children exhibited more positive affect during intrusive exchanges with their fathers than with their mothers. Intrusive behaviors did not have longitudinal relations to children's developmental outcomes, but the positive mother-child dyadic affect was associated with children's sociability and sustained attention at prekindergarten.

Measurement issues are most pronounced in the literature on nonresident fathers because often, nonresidence is equated with father absence, so most studies go no further in attempting to describe father-child relationships between nonresident fathers and their children. In fact, many nonresident fathers and children still have contact with one another. Building on a convenience sample of nonresident fathers, Fagan et al. (2019) administered a questionnaire that gauged the type and amount of contact fathers had with their children and found two important constructs of nonresident father contact: communication and caregiving. Communication-contact (using phone or social media to praise the child and to tell the child s/he is loved) encompassed in many respects the ongoing social connections and emotional relationships fathers and children maintained despite the residence status, and was predictive of the quality of father-child relationships, fathers' sense of satisfaction and self-efficacy. In addition, findings in Chapter III (Lee et al., 2019) tested longitudinal measurement invariance across mothers' and fathers' reports of maternal gatekeeping behavior and examined associations between mothers' reported and observed gatekeeping behavior. The findings supported the use of 12 items to assess mothers' gate opening and closing behaviors, the factor structure of which appeared to be invariant across time (in the first year), and mothers' and fathers' reports. Gate opening and closing behaviors are central aspects of coparenting relationships and despite the strong connections with father-child interactions, gate-keeping and gate-opening receive little attention in the literature on fathering. Findings from this study can inform not only efforts to understand the role that mothers play in facilitating father involvement in two-parent families, but also in nonresident families. Finally, Chapter II (Feinberg et al., 2019) used a time-diary approach to collect data on fathers' daily experiences over the course of a week, and then used BP and WP variability over the week to shed light on how such variability predicted new parents' well-being and family relationships. Not only is the measurement-burst design highly innovative in capturing these dynamics, but findings can generate insights that can be developed into interventions.

### *Methodological Innovations*

Assessing father-child interactions, which are dynamic and transactional in nature, is a complex phenomenon that could be investigated across several dimensions. Most studies on fathering rely either on fathers' reports of what

they do with children, how involved they are with their children, or maternal reports of father involvement. Although survey data on father involvement is useful, there are noted limitations. Even when observational data are available, there are limitations (e.g., when and for how long) about the way the data are collected and analyzed. In this regard, studies presented in Chapters VI and IV (Karberg et al., 2019; Volling et al., 2019) used innovative methodologies to examine fathering behaviors during observational paradigms. Chapter IV (Volling et al., 2019) extended prior literature in that it included both mothers and fathers interacting with their children in a laboratory task and a well-established observational coding system to conduct LPA in an effort to distinguish among different clusters of fathers based on their levels of activation (sensitivity, cognitive stimulation, and intrusiveness), supportive, intrusive, or disengaged parenting. Similarly, Chapter V (Piskernik & Ahnert, 2019) relied on LCA to cluster father-child activities into different profiles of paternal involvement and used BCT to mine a large dataset of father and family variables to uncover the most significant predictors of the father profiles.

All of the studies in this issue that examined father-child relationships (except for Chapter VII on nonresident fathers) utilized methods (observational, experience sampling, time use diaries) that assessed what fathers did directly while interacting with their children. These and other methods designed to assess the types of activities and the quality of the interactions between fathers and children should be considered the gold standard for future research on father-child relationships, and perhaps, parent-child relationships, in general, instead of a singular focus on self-report survey methods. In many cases, the various studies of this monograph also included both mothers and fathers to test hypotheses across parents, and to determine if findings were similar or different for fathers and mothers. This approach is aligned with family systems theory and the ecological framework presented in Chapter I that underscores the interconnectedness across family subsystems and ecological levels and the point that to understand one aspect of the system (e.g., mother-child or father-child relationships), there must be a concerted effort to understand multiple, interrelated subsystems. This approach is very different than many of the traditional developmental models focused on the mother-child dyad as the primary socializing influence on children's development.

*Advancing Research on Fathering and Children's Development*

The SRCD-sponsored International Working Group on Advancing Research and Measurement on Fathering and Children's Development discussed several core issues that deserve serious consideration in future research with the goal of advancing theoretical conceptualizations and the assessment and measurement of fathering and parenting, more generally. What follows are some of the core issues discussed by the group to help build future research on fathering and father-child relationships.

*Core Issue 1. Emphasize That Fathers Are Important to Children's Development and Researchers Need to Know They Matter to Children*

Developmental research on parenting still appears to see fathers as optional or secondary caregivers and places primary importance on the mother–child relationship (Cabrera, Volling, & Barr, 2018). It is true that mothers spend more time (quantity) engaged in child care than fathers, but societal changes over the past several decades have resulted in far more engagement of fathers in the care of their children (Pleck, 2010; Sayer, 2004) than generations past, and the number of stay-at-home fathers has increased (Kramer & Kramer, 2016). We do not make an essentialism argument that fathers are essential (as mothers are not essential, either; Cabrera et al., 2014; Fagan et al., 2014; Silverstein & Auerbach, 1999). Rather, we suggest that children benefit from both parents' loving and responsive parenting. Research clearly demonstrates that children in two-parent families fare better developmentally when child care can be shared by two or more adults and that fathers (and mothers) make independent contributions to their children's well-being and development. Fathers, as parents, need to be included in research studies on child development so the wide range of roles that fathers occupy (biological, adoptive, step, social, nonresident) can be fully appreciated and understood. All the empirical studies in this monograph focused on biological fathers, and the examples provided can serve as the basis for further theory development, hypothesis generation, and analyses in other family arrangements and fathering roles.

*Core Issue 2: Use an Ecological Systems Approach and Family Focus for Understanding Fathering, Mothering, and Coparenting*

There is no one grand theory for defining and studying father–child relationships (see Adamsons & Palkovitz, 2014; Cabrera et al., 2014). For decades, father involvement was defined along the tripartite model that included accessibility, direct engagement, and responsibility (Lamb, Pleck, Charnov, & Levine, 1987). This model motivated an increased interest in father involvement and inclusion of fathers into research on children's development (see Cabrera et al., 2014; Palkovitz et al., 2014). The group endorsed a systems approach that focused on the relationships between parents and children and the embeddedness of these relationships within a wider social and cultural context. Such an approach also has a long history in developmental science (Belsky, 1981; Minuchin, 1985). For instance, Belsky (1981) argued that the inclusion of fathers in research on child development created more than an additional (second) parent–child relationship, but transformed the mother–child relationship into a family system, a triadic constellation of parent–child and marital relationships, each influencing the other in a reciprocal and bidirectional relationship. Parke et al. (1979) also provided recommendations for testing the direct

and indirect effects apparent within the family system consisting of mothers, fathers, and children, similar to the suggestions by Cabrera et al. (2014), noting how children's development is influenced through direct interactions and the relationships with their fathers, but also through the fathers' support of the mother-child relationship. In this regard, the current monograph started with the presentation of a developmental ecological systems framework to help embed not only the current studies in this issue but also for future research yet to be conducted.

*Core Issue 3: Understand that Fathers (and Mothers) Are Part of Diverse Family and Social Systems*

The complexity of families today demands that we acknowledge the diversity of fathers' roles (Cabrera et al., 2014; Palkovitz et al., 2014). Even in two-parent, biological family systems, there is heterogeneity in parental roles and a restructuring of who does what. Mothers and fathers are both employed and caring for children in many families, so there is no clear distinction between "breadwinner" and "stay at home" parent. One challenge for social scientists trying to assess father-child relationships in varied family contexts is that much of our work assumes that fathers are optimally involved with their children only when they live together. This is, of course, not true. Despite the economic downturns and unemployment that pervade communities steeped in poverty, many young men still hold onto the ideal of being both a provider and a family man and being there for their children (Edin & Nelson, 2013). And many do just that; studies show that many low-income men who live with their children have an impact on their children's development in early childhood and over time (Cabrera et al., 2009, 2014, 2017; Karberg et al., 2019). Fagan et al. (2019) presented a measure for assessing nonresident father contact and activities with children so as to provide some means of gaining insight into how to define father involvement for nonresident men.

*Core Issue 4: Consider that the Study of Fathers May Uncover "New" Parenting Constructs that Predict Children's Development*

The early assessments of fathering were based on assessments of mothering. Surveys, observational coding systems, and research paradigms (e.g., strange situation to assess mother-infant attachment) developed to assess mothering and mother-child relationships (maternal template) were generally applied to assess fathering and father-child relationships. As a first step, this is certainly a reasonable strategy as it taps into parenting strategies that can define behaviors used by both mothers and fathers (e.g., sensitivity and responsiveness to infant distress). As more knowledge accumulates, however, on what fathers do and how they interact with their children, it was recognized that the maternal template

may “miss” behaviors that may be unique to fathers, or that may be of more consequence for fathers and children than for mothers and children and vice versa. More research is needed to identify the ways in which mothers and fathers are similar and different; a common theme in many of the empirical papers in this monograph. Some theoretical formulations suggest that fathers engage in certain behaviors (e.g., RTP, challenging behavior) more than mothers and these unique aspects of father–child relationships predict children’s developmental outcomes (Cabrera et al., 2014; Grossmann et al., 2002; Paquette, 2004). These contemporary theoretical approaches allow researchers to formulate and test specific hypotheses about parenting behaviors that fathers may use frequently, but mothers do as well (Karberg et al., Chapter VI; Volling et al., Chapter IV). In the process, potentially new parenting constructs may be uncovered. One such behavior is physical, RTP, which many studies find fathers do more than mothers. In contrast to sensitivity and responsiveness, which dominate research on early mother–child relationships, play rarely makes it to the center stage of parenting research. Fathers can be sensitive, responsive, and lovingly affectionate, but they also tell silly jokes, are playful, entertain their children, and teach appropriate skills of competitive engagement (Cabrera, Karberg, Malin, & Aldoney, 2017). To advance our empirical understanding of parenting, we must move beyond theories focused only on maternal constructs and the maternal template as the dominant methodology to understand parenting practices. We must embrace a broader set of methods that will enhance our understanding of fathering, mothering, and parenting that does not relegate behaviors performed mostly by fathers to secondary importance in the lives of children (Fagan et al., 2014).

*Core Issue 5: Consider the Sociocultural and Global Context of Parenting and Fathering*

The cultural context, including beliefs, expectations, norms, and practice, is intricately linked to the way fathers and children interact. However, cultural contexts are dynamic, vary widely, and change over time. Thus, one future challenge for developmental scientists will be to assess what aspects of parenting for different cultural groups are universal and relatively stable and what other aspects might be more culture-specific. Only by accounting for the role of culture in our investigations will we be able to investigate more fully how fathers influence child development in light of the gender roles, government policies, and economic circumstances that differ across countries and cultures in which various family structures function and develop. In particular, we need research that considers the cultural context in which fathers parent and the ways in which multiple caregivers contribute to children’s outcomes (Aldoney & Cabrera, 2016; Gettler, 2016; Mesman, Minter, & Angnged, 2016). Further, research needs to examine the interplay between factors that impinge on father–child relationships and family

functioning, including formal education, employment opportunities, immigration status, military deployment, former incarceration, and transnational fatherhood (Barr et al., 2014; Parke & Cookston, this issue).

*Core Issue 6: Develop New Assessment Tools, Expand Research Questions and Broaden Representation*

Additional assessments and observational coding systems are needed that measure dyadic (father–child interactions), coparent (parent–parent), and triadic (father–mother–child, father–sibling–sibling) interactions to go beyond the traditional mother–child only paradigms that currently pervade the field. Coding systems and self-report instruments are needed that define what fathers and mothers do as parents, and coparents, in complex family interactions under different cultural and macrosystem conditions. Several of the chapters in this monograph either developed new assessment instruments, such as contact between nonresident fathers and children (Fagan et al., Chapter VII) or behavioral coding systems (Karberg et al., Chapter VI), novel statistical analyses applied to both mothers and fathers (Feinberg et al., Chapter II; Piskernik & Ahnert, Chapter V; Volling et al., Chapter IV), and broadening the family focus to consider coparental relationships (Lee et al., Chapter III). Future investigations would benefit from the inclusion of different family subsystems—father–child, sibling, mother–father, coparenting—into research designs in line with a family systems perspective so as to examine relations among relationships and different subsystems in the family, and with different ecological systems outside the family.

Data collection also places primary emphasis on collecting information from mothers, and if enough funding is available, then collecting information from secondary caregivers, including fathers, grandmothers, or other caregivers. As a result, it is very difficult to find observations of father–child and mother–child interactions, or self-reports of mothers and fathers in the same study or dataset. Too often the sample sizes for these secondary caregiving assessments are smaller and based on fewer numbers of fathers compared to mothers. Data collection for some of the larger national cohort studies in many countries have not considered fathers as parents, but see the main contribution of men to family life and children's development as one of economic provider, although this is starting to change (e.g., Cabrera et al., 2014). But, data are emerging and being made available publicly for secondary data analyses. The Fragile Families and Child Well-Being Study, and Early Childhood Longitudinal Study-Birth Cohort in the United States, the Millenium Cohort Study, the Avon Longitudinal Study of Parents and Children, Growing up in Scotland and Growing up in Ireland cohort studies in the United Kingdom, the Generation R study in the Netherlands, the Etude Longitudinale Francaise depuis L'Enfance in France, the Norwegian

Mother and Child Cohort Study, the Growing up in New Zealand, the Longitudinal Study of Australian Children, JA Kids Jamaican Birth Cohort Study, and several others, have now included reports from fathers in some way in their research designs, perhaps not extensively, but it is certainly a beginning (see also Kiernan, 2014). Although many large-scale birth cohort studies collect maternal reports of fathering behaviors, they still do not collect extensive information from men and fathers themselves. Finally, it should be noted that Promundo has been conducting the International Men and Gender Equality Survey (IMAGES) in more than 20 countries globally for many years, including India, Brazil, Croatia, Latin America, the Middle East and North Africa (see Barker et al., 2011).

A related challenge to collecting multiple assessments from multiple caregivers is the ability to integrate the information across different levels of analysis, not just in terms of multiple members in the same family, but also across assessment levels (e.g., neuroimaging, behavior, family relationships) and over longitudinal time points. For instance, how does the neurobiology of caregiving change across time? How can change in hormonal levels help explain behaviors observed during parent–child interactions? And do brain–behavior relations differ for mothers and fathers across contexts and cultures? There is a need for further developments in the statistical modeling of multiple respondents at multiple levels (brain, behavior, context) across multiple longitudinal timepoints.

#### Monograph Scope, Limitations, and Future Directions

Although inclusion of both fathers and mothers, as well as multiple data collection and statistical methods, constitutes progress and a step forward toward a better understanding of the quality of father–child relationships and how they relate to children’s development, other important factors were not examined in the current monograph. Consistent with a focus on father–child relationships and the interactions and activities occurring between fathers and children, all the empirical demonstrations focused on the microsystem of the developmental ecological systems framework, and the proximal processes of father–child interaction. In the commentary that follows, Parke and Cookston expand on these studies by addressing the broader sociocultural contexts that impinge on fathering and need to be considered in the future. Considering the multiple levels of analysis across the developmental ecological systems model will bring greater insights into the study of parent–child relationships.

Most of the studies using observational data included children ranging in age from birth to age 5; there were no observations with older children, mostly because much of the research on fathering to date has examined

children in this age range. Only one study focused on parenting behaviors of nonresident fathers with older children. The conceptual and methodological issues addressed in these various studies, however, are relevant to families and children across the life span and the inclusion of more studies with older children and adolescents could have strengthened the contributions of this issue. Our hope is that the findings generated here provide the basis for future hypothesis testing and theory building in an iterative process that includes parents and children across different ages, cultures, racial and ethnic groups, socioeconomic backgrounds, and intergenerational relationships to further research on parenting and children's development. Further, several studies were conducted with small samples and less than two waves of data collection, which made it difficult to test more sophisticated transactional models of developmental influence that unfold over time. Moreover, in terms of design, several studies did not include measures of child outcomes to determine how parenting and coparenting were related to children's development. The need for studies that include child outcomes is key to getting closer to understanding the associations between what fathers do and how they interact with their children, and their children's developmental outcomes, as it is the effects on children that determines in large part whether parenting benefits or harms children's development.

In this monograph, we discussed key issues related to collecting father-child data from resident and nonresident fathers and offered examples of how to collect and analyze such data. Moreover, we also discussed the predictive validity of a measure of nonresident father-child contact, as well as a measure to examine how mothers open or close gates for fathers. Despite theoretical and conceptual advances in how to define father involvement and fathering behaviors, the field has lagged behind in terms of methodological and analytical approaches, and the current monograph presented some ways to do so that should be useful in providing guidance to researchers wanting to incorporate fathers into their research designs. Given the role that measurement plays in our scientific inquiry, different types of coding schemes, data collection methods, and statistical approaches were presented to serve as examples for future research on father-child relationships. Collectively, these studies are the first step toward more sustained and rigorous work in understanding how fathers develop positive and mutually supportive relationships with their children, as well as with others in their social networks. The International Working Group on Advancing Research and Measurement on Fathering and Children's Development hopes this monograph will serve as a platform for future research on fathers that can serve as a guide for scholars across disciplines to continue with this important focus of investigation.

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**Commentary: Many Types of Fathers, Many Types of Contexts: An Agenda for Future Progress in Fathering Research**

*Ross D. Parke and Jeffrey T. Cookston*

**Abstract** Under the guidance of an ecological systems framework, this commentary underscores recent advances in research on fathers as illustrated by the contributors to this monograph and highlights future issues that merit exploration. These issues include the recognition of the forms that fathering assumes beyond fathers in intact and married families, the cultural and contextual constraints on fathering, the challenge to the necessity of fathers in light of work on same-gender parent families, the importance of expanding the tasks and paradigms used for the assessment of fathering, and the recognition of the value of an interdisciplinary approach to fathering scholarship. Both the papers in this monograph and the remaining issues can be usefully understood through the lens of a developmental ecological systems theoretical perspective.

As the contributors to this monograph clearly demonstrate, under the theoretical guidance of an ecological systems framework there has been considerable progress over the past several decades in research on the role of fathers in children's development. Our goals in this commentary are to both highlight these advances and to note the issues that remain underdeveloped at both the conceptual and methodological levels. We bring these issues to the fore as a guide to future progress in this area. These understudied issues include the increasing recognition of (a) the variations in the forms that fathering assumes beyond the new, involved father in intact and married families, (b) the cultural and contextual constraints on fathering, (c) the challenge to the necessity of fathers in light of recent work on same-gender parent families, (d) the importance of expanding the tasks and paradigms used for the assessment of fathering, and (e) the recognition of the value of an interdisciplinary approach to fathering scholarship.

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Corresponding author: Ross D. Parke, Department of Psychology, University of California, Psychology Building, Riverside, CA 9252, email: ross.parke@ucr.edu

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## Beyond the Contemporary Involved Middle-Class Father: Economically Disadvantaged Fathers and Their Children

It is increasingly clear that the previous descriptions of the emergence, albeit slowly, of the contemporary, involved fathers who are more actively involved in the care of their children and who seek to share the responsibilities of both caregiver and breadwinner with their partners does not apply to all fathers (Doucet, 2006; Edin & Nelson, 2013). The premise that fathers are located in diverse family and social systems is one of the core issues addressed in this monograph. In fact, there is increasing recognition that there is a two-tier family system based to a large extent on social class (Furstenberg, 2014). The cultural trends of involved fathers apply most clearly to economically and educationally advantaged families while they apply less readily to less economically well-off and less-educated fathers and families. Especially as economic inequality has increased, it is important to recognize that income disparities between fathers have yielded more variability across social classes in the patterns of fathering. Many fathers cohabit with their partners (rather than marry) while others may be divorced or not in residence with their partner but remain involved in the lives of their children. Moreover, to appreciate fully the variability in contact between poor, often nonresidential fathers and their offspring, several features of fathering among poor unwed men merit attention.

First, in contrast to the contemporary coresidential fathers, contact between nonresidential fathers and their children in the United States decreases over time when the father is not married to the child's mother (Carlson & McLanahan, 2010). However, contact is not absent and there is a notable amount of variation in the amount of time that unmarried fathers spend with their children as well as variations in their forms of support and contact. In fact, studies of unmarried fathers indicate a surprising amount of paternal involvement for extended periods following the birth but considerable instability across time. As Fagan et al.'s (2019) document, these nonresidential fathers often rely on contact at a distance and communicate via phone or social media rather than face-to-face. Importantly, Fagan et al. notes that this type of contact is positively linked with the quality of the father-child relationship and father's parenting efficacy. Clearly, a variety of forms of contact can be beneficial for children and fathers alike. This work illustrates that microsystem levels of interaction need not be restricted to face-to-face contact but can be expanded to include technological-based patterns of contact across physical distance. Finally, the role of macrosystem-level factors such as the legal system governing custody decisions can aid our understanding of patterns of contact between nonresident fathers and their children.

Second, types of father involvement are varied and extend beyond financial or even emotional and practical support for the mother. Disadvantaged fathers provide microsystem-level input such as nurturance, play and leisure activities, safety, moral guidance, discipline as well as mesosystem-level contact through connections with the extended family and

community. In the Fragile Families study, formal child support by fathers was rare but informal support in the form of money, toys, or diapers for the infant or transportation was common around the birth of the baby (Carlson & McLanahan, 2010). A broadened definition of support has clearly corrected the myth of the “deadbeat dad” among poor and unmarried fathers (Tamis-LeMonda & McFadden, 2010). Further, the stereotype that African American fathers are uninvolved is not true either. In the Fragile Families study, which sampled unmarried, young mothers, African American men were more likely to maintain contact with their children than either White or Latino men (Carlson & McLanahan, 2010), a reminder that the macrosystem level with its focus on cultural norms is important to consider.

Third, to appreciate fully the variability in father–child contact among poor, often nonresidential fathers, another feature of fathering among poor unwed men needs attention: fathers do not maintain similar levels of contact across all biological children. Although middle-class men are more likely to marry, divorce, and remarry, a pattern that has been termed the marriage-go-round (Cherlin, 2009), men in poverty are less likely to marry but more likely than middle-class men to have multiple children with different partners. According to Edin and Nelson (2013), these men are on the “family-go-round where good fatherhood is accomplished by moving from one child to another” (p. 189) such that as romantic relationships end, the fathers may move on to a new relationship and often a new bout of fathering. In such cases, fathering efforts are not evenly distributed across all offspring because few men are able to support (or even maintain ties) with several children with different partners. Instead, a pattern of selective fathering may be more normative among some poor, unmarried men whereby a father selectively and serially invests his fathering capital in one or a few offspring. At the same time, in contrast to the cultural expectation that fathers should be the breadwinner for their partner and household, lower income unmarried men tend to forgo the financial provider/breadwinner role and instead assume the role of playmate and recreational partner for the child. This represents a reversal of roles between the sexes because it is the mother who is the financial provider and the father the playmate to their child among these poor families. The child for whom a father may take responsibility is often the outcome of a prior romantic relationship since many times the mother of the target child may be involved with another male partner or in some cases children from a current romantic relationship are selected for paternal attention. Although this may allow men to perhaps father at least one child well, it leaves the women who have borne this man’s other children to bear the major responsibility for not only the financial burden of raising a child but also leaves these “non-selected” children without support from their biological father. More attention to the effects of the uneven distribution of low-income father involvement across different children in different family households is needed. Utilization of an ecological systems framework with its focus on exosystem-level factors such as work opportunities, wages, and schedules, and macrosystem-level variables such as ideological views concerning family obligations can be helpful in conceptualizing

these issues. Clearly, the patterns of contact between fathers and their offspring, the modes of support provided to either children or the biological mother, and the couple relationships among these poor families in which fathers are often nonresidential are sufficiently unique from more typical married families with two heterosexual parents to raise caution about any single profile of contemporary fathers. Instead, fatherhood appears to have multiple faces.

#### Fathering at a Distance: Incarcerated, Deployed, and Transnational Fathers

It is not merely the disadvantaged, nonresident fathers who require our increased attention, but other men who “father at a distance” and have limited face-to-face contact with their children due to incarceration, military deployment, or migration patterns. These issues can be valuably viewed through an ecological systems lens with their focus on macrosystem-level factors such as institutional constraints. Although divorced fathers have received plenty of research attention (Amato & Dorius, 2010), these other men have remained in the research shadows, yet their circumstances are deserving of further scrutiny if we wish to understand the full range of fathering.

For instance, incarcerated fathers in the United States are disproportionately drawn from poor, disadvantaged, and minority groups. A recent estimate suggests that more than 5,000,000 children, or 7% of all U.S. children, have had a coresident parent leave and spend time in jail or prison (Murphey & Cooper, 2015). In 1990, 1 in 25 White children and one in four African American children born had experienced parental imprisonment by their 14th birthday (Wildeman, 2009). There has been increasing interest in both the modes and frequency of contact between incarcerated parents and their children (Poehlmann-Tynan, 2015; Wildeman, Haskins, & Poehlmann-Tynan, 2018). Visitation of an incarcerated parent in prison can sometimes be helpful for children, especially if the context of visitation is child-friendly and involves physical contact. However, more typical incarcerated parent–child contact occurs through plexiglass barriers, and this distance has been linked with depression and anxiety symptoms among children while the use of alternative forms of contact (e.g., mail, phone) was associated with fewer internalizing symptoms (Poehlmann-Tynan, 2015). Visitation and mail contact during incarceration has also been linked with more father–child contact and better father–child relationships and child outcomes in the post-incarceration period (La Vigne, Naser, Brooks, & Castro, 2005), as well as lower recidivism rates for inmates (Bales & Mears, 2008). In sum, the context and type of contact are important moderators of these links between contact and outcomes, but much remains to be understood fully about the factors that influence the relationships between incarcerated fathers and their children.

Another form of fathering at a distance involves fathers who are deployed to foreign lands as part of their military duties. Currently, two million children in the United States under the age of 18 have at least one active-duty parent and nearly 500,000 of those children are between the ages of birth and 5 years (Murphey,

2013). Most deployed parents are fathers (84%), although more mothers are serving in the military than in the past and now comprise approximately 16% of the active-duty force. Patterns of contact between these physically absent fathers (and mothers) and their children are beginning to receive attention (MacDermid Wadsworth, 2013). The increase in the participation of women in the military may, in part, account for the increased attention. Fathers who are deployed due to military service experience a unique set of challenges. On the one hand, members of the military are part of a long national tradition typically free of the confounding factors such as stigma and poverty. On the other hand, the physical separation of military deployed fathers from their children makes direct contact a challenge. However, access to modern telecommunication such as phone contacts, video calls, and other forms of electronic communication mean that deployed fathers can now interact with their children and their parenting partners regularly. A formative evaluation of a mobile phone application designed to help military fathers learn about child development, track milestones, and communicate with their child's other parent demonstrated that the content resonated with military fathers and could be a useful tool to engage military fathers in the lives of their children (Lee & Walsh, 2001). However, further evaluation of the effectiveness of these forms of contact as a substitute for regular face-to-face interaction is needed. Most children who experience father deployment fare well, but there is a subset of children who experience adversity (Mustillo, Wadsworth, & Lester, 2016). When military deployed fathers are separated from their children for extended periods, children appear to have more adjustment problems at both school (Chandra et al., 2010) and at home (Lester & Flake, 2013). Recently, a DVD intervention based on Sesame Street characters that was designed to help families prepare for and cope with deployment was linked to better functioning among caregivers and children (Flittner O'Grady, Thomaseo Burton, Chawla, Topp, & MacDermid Wadsworth, 2016). For many military fathers who have seen active duty, a return to family life can prove challenging, and it is common for these fathers to experience difficulties in their marriages and parenting (Mustillo, Xu, & MacDermid Wadsworth, 2014). The evidence on military deployment and father contact illustrates the range of forms that fathering assumes beyond absence due to divorce or incarceration, but it is rarely considered in the literature on children's development.

Another understudied aspect of fathering at a distance involves transnational fathers who often leave their country of origin and migrate to another country to improve their economic prospects, but who often leave either their partner or children or both behind in the process. This group of fathers can be understood through a macrosystem level of analysis that underscores the formative role of culture in shaping these work and immigration patterns. Some estimates suggest that 25% of children in U.S. immigrant families have at least one parent abroad (Mazzucato & Schans, 2011) and most often it is the father who is the emigrating parent. The decision to divide child-care and provisioning responsibilities across international borders is best viewed as a family strategy aimed at helping the family survive economically. At the same time, the consequences of these

strategies for father–mother relationships and father–child relationships are poorly understood, although a number of memoirs have been written through the lens of the transnational family (e.g., Grande, 2012). Little is known about the variations in the amount of time that fathers (or mothers) are separated from their children (or partners) or about the patterns of contact between transnational parents and their children and or partners who remain in the country of origin.

Most transnational parents make an effort to stay in contact with their children. According to a recent internet survey (Cookston, Boyer, Vega, & Parke, 2017), 64% of transnational parents in the United States cited “visiting children living there” as their primary reason for visiting their families in Mexico. In spite of their motivation to see their children, 75% of parents had not been back to visit their children in over a year, likely because visiting their home country is often financially and logistically difficult. Alternatively, most transnational parents use some form of “communication at a distance” to keep in contact with their children. For instance, Dreby (2010) found that most parents—mothers and fathers—reported calling home to Mexico once a week, and 61% of children reported talking to their parents once a week or more. In an internet survey, Cookston et al. (2017) found that 83% of parents communicated with their children via telephone, 85% via the internet, and 67% by Skype or Facetime. Only 24% of parents reported they communicated by mail. Future research is needed that considers not only the frequency of contact between children and their transnational fathers, but the modes of communication as well.

Finally, we need to be cautious in our conceptualization of fathers into discrete and often binary categories (e.g., coresident vs. nonresident; N. J. Cabrera, personal communication, May, 2017) because men may shift categories across time or may belong to several categories at any one point as represented by the chronosystem of the ecological systems perspective. Men divorce and become nonresident fathers or are widowed and become single fathers. Other men remarry and function as a stepfather to his new partner’s children while also maintaining contact with his biological children. Some incarcerated fathers may have been military veterans who were deployed fathers at some point in their parenting career. Similarly, transnational fathers who are separated from their children may experience incarceration, develop new families in their host country, or have non-stop contact with their children through text messaging. Finally, using ethnicity as a category for organizing men into father categories is also oversimplified because ethnic minority men can be immigrants or transnational parents or U.S. citizens, and economically disadvantaged or well-educated and affluent. Moreover, shifts in acculturation patterns across time complicate categorization even further because the enactment of the father role may change as a function of acculturation progress. New views of acculturation beyond biculturalism include concepts of tricultural acculturation, whereby, for example, Jamaican immigrant adults in the United States juggle three cultural worlds in their daily lives (e.g., Jamaican, European American mainstream, Black), and remote acculturation, whereby, for example, Jamaican adolescents have indirect and/or intermittent contact with North American norms and

values by exposure to American media (Ferguson, Costigan, Clarke, & Ge, 2016; Ferguson, Iturbide, & Gordon, 2014). Although these frameworks represent potential new directions for work with immigrant fathers and families, such an intersectional framework cautions us against embracing binary categories because fathers may have multiple cultural/ethnic identities simultaneously (i. e., being loyal to their country of origin as well as their host country). As Western societies continue to become more heterogeneous, with diverse groups of refugees and immigrants, this topic will continue to be an important focus of developmental research and theory building.

#### Contextual Issues: The Role of Familial and Extrafamilial Settings in Father Involvement

Greater attention needs to be paid to the role of context in determining father–child relationships as suggested by an ecological systems framework. How do father–child interaction patterns shift between home and laboratory settings and across different types of interaction contexts such as play, teaching, and caregiving? Moreover, it is important to consider the social as well as the physical context. Consistent with a mesosystem level of analysis, recognition of the embeddedness of fathers in family contexts as well as a variety of extrafamilial social settings is important for understanding variation in father functioning (Parke, 2013). And in the macrosystem, the legal system is an example of an institution that affects father functioning as illustrated by the legal issues surrounding custody, adoption, and the regulation of new reproductive technologies. As indicated by a mesosystem level of analysis, the family links with educational institutions including schools as centers of academic learning and schools as social service systems (i.e., child care centers and after school programs) need more attention. However, it is important to underscore that social service efforts to promote father involvement through educational interventions can be effective (Pruett, Pruett, Cowan, & Cowan, 2017). Medical and social service providers play central roles in family life but need more systematic scrutiny, especially in light of the need to make fathers more welcome in these settings. Work contexts, another example of an exosystem level set of analysis, have historically received attention, especially maternal employment issues, but new issues have emerged such as time management, work schedules and stress, and family leave policies for fathers as well as mothers. As intergenerational perspectives become more prevalent, family leave needs to accommodate not only infants and ill children, but elderly relatives as well, because it is likely as family roles shift, fathers, as well as mothers, will be called upon to provide elder care. Religious institutions, another illustration of the mesosystem level, are another context that has not yet been fully embraced by our field with some exceptions (e.g., Bollinger & Palkovitz, 2003). We still do not fully appreciate the myriad ways in which religious beliefs and practices, religious institutions, and leaders play a role in family

life as both moral guides and social supports. Nor do we fully understand the attitudes, practices, and organization of family life across different religious groups such as Buddhists, Hindus, and Muslims who are becoming increasingly part of contemporary western culture. Community support systems may be particularly important for the development and maintenance of men's identities as fathers (Eggebeen, Knoester, & McDaniel, 2013). Clearly, the links between fathers, families, and community institutions continue to merit our attention and it is evident that an ecological systems framework can serve as a useful guide for this task.

As noted in our guiding developmental ecological systems theoretical paradigm, especially the macrosystem component of this framework, it is necessary to recognize that variations in family structure and in ethnicity and social class will modify the ways in which social networks are organized and utilized. For example, the role of the extended family is much more prominent among African Americans and Latinos than in other groups (Cabrera, Aldoney, & Tamis-LeMonda, 2013; Roopnarine & Hossain, 2013). Similarly, single-parent families may be embedded more directly in community-based social networks than two-parent families. Descriptions of these variations are necessary for an adequate understanding of the role of extrafamilial networks on fathers and family functioning.

Cross-cultural work has challenged the assumption of the universality of paternal physical play and the common view that physical play is the hallmark of fathers' interactive style. In some cultures (e.g., India, Sweden, the Aka pygmies of central Africa), physical play is not a central feature of the father–infant relationship (Hewlett & MacFarlan, 2010; Roopnarine & Hossain, 2013). Instead, both mothers and fathers display affection and engage in plenty of close physical contact. Perhaps societies that value sharing and cooperation are less likely to encourage a physical, playful, interactive style, whereas industrialized societies tend to encourage this physically playful interactive style in the service of socializing values of competition, independence, and assertiveness (Paquette, 2004). Perhaps a broader and more inclusive conceptualization of the pathways through which fathers influence their children is needed that addresses cultural context regarding whether father's physical play is a major contributor to children's emotional regulation—at least in some cultures. This focus on sociocultural and global contexts of fathering is a core issue addressed in this monograph.

There is a continuing need to recognize the historical context of fathering and, in turn, to monitor historical trends and describe their impact on father–child relationships (Furstenberg, 2014). A historical perspective on fathers and families is necessary because changing economic, social, political, and technological changes have real and measurable effects on family organization, form, and functioning. As historical events such as the Great Depression, the Midwest farm crisis of the 1980s in the United States, the tragedy of September 11, 2001, the Great Recession of the early 2000s, and the recent waves of refugee migration in Europe illustrate, fathers and families are altered by secular events, and we need

to continually monitor these effects. Culturally significant events are potentially disruptive forces on family functioning that require creative strategies and interventions to mitigate the negative effects on families and children. But these changes can also be viewed as natural experiments that are useful in evaluating theoretical models of family functioning. Whether and how fathers (and mothers) discuss current events with their children has been understudied, but such conversations may provide both stress relief for parents and clarity for children. Relatedly, the effects of father–child separation on children and men themselves as a result of refugee migration may provide new insights into this issue.

### Recent Challenges to Fathers as Essential Socialization Agents

Recent work on gay and lesbian families has raised provocative issues for the field of fatherhood research. As the evidence suggests, children in families of same-sex parents develop adequately in terms of social-emotional adjustment (Golombok, 2015; Patterson, 2017). As Parke (2013) has argued, “Our focus on the gender of the parent may be too narrow; instead, it could be helpful to recast the issue and ask whether it is the extent to which exposure to males and/or females is critical or whether it is exposure to the interactive style typically associated with either mother or father that matters” (p. 105). Perhaps the style of parenting and gender of the parent who enacts the style can be viewed as partially independent. As Ross and Taylor (1989) found, boys prefer a physical play style regardless of whether this physically stimulating form of play is delivered by mothers or fathers. More attention to the kinds of parenting styles evident in same-gendered parental households will help us address the uniqueness of father and mother roles in the family and help provide needed clarity on the important issue of how essential opposite sex parental dyads are for children’s development (Parke, 2013).

### Methodological Issues: New Approaches to Measurement and Assessment

As one of the core issues of this monograph, several contributors emphasized that no single methodological or assessment strategy will suffice to understand the development of the father's role in the family. Instead, a wide range of designs and data collection and data analysis strategies is necessary. The issue of the choice of the level of coding (molar vs. molecular) is a continuing challenge. However, as always, methodology depends on the type of question being addressed. For example, Karberg, Cabrera, Malin, and Kuhns (2019) document the continuing value of an event-based approach that permitted evaluation of frequency and intensity of parental intrusiveness. Since only the intensity of intrusiveness was linked with child outcomes, the use of a molar or global approach may have obscured these links. At the same time, when more complex and

multifaceted family behavior patterns such as gatekeeping are being examined, Lee et al. (2019) reported that global rating scales may be more useful than short-term observationally based molecular scores. There continues to be a need to develop guidelines concerning the appropriate level of analysis (molar vs. molecular) for different questions concerning father–child relationships (e.g., Card, 2017). Nor is it merely the level of measurement that merits consideration. The time period across which events are measured is critical as well. Although developmental psychologists have often tracked changes in fathering over months or years, intermediate time intervals provided by daily diary reports and measurement-burst designs (Feinberg et al., 2019) or experience-sampling methods (Piskernik & Ahnert, 2019) can provide other useful time frames for assessing ongoing patterns of routine family behaviors in naturalistic settings. Multiple analytic strategies can be valuable as well. Although most prior studies of fathering have used a variable-oriented approach, as Volling et al. (2019) and Piskernik and Ahnert (2019) productively illustrate, person-oriented approaches that yield profiles of fathering behaviors offer great promise for advancing our appreciation of the complexity of fathering. The identification of paternal profiles could prove helpful in tailoring interventions aimed at modifying father behavior since these targeted programs would be more efficient and effective than a generic one-size approach to intervention efforts.

More attention to tasks used for the assessment of the effects of fathers on their children is needed in light of earlier work that suggests that challenging situations may be well-suited to uncovering possibly unique effects of father interaction on children (Flanders, Leo, Paquette, Pihl, & Séguin, 2009; Grossmann et al., 2002; Majdandžić, de Vente, & Bögels, 2016; Paquette, 2004). In response to this need, Volling et al. (2019) showed that the use of challenging and arousing tasks can usefully reveal aspects of father–toddler interaction style. However, rather than discovering that these tasks are unique to fathers, they found that mothers show similar patterns of interactive behavior in these challenging contexts. Because these tasks are independent of standard measures of attachment, the Volling et al. work suggested the need for expanding the range of tasks used in future studies of parent–child interaction to fully capture the wide set of behaviors that may characterize both mother and father interactive styles. Compared to mothers, fathers may appear to play with their children in a manner intended to promote assertiveness, risk taking, and perseverance, behaviors generally referred to as challenging parenting behavior (Majdandžić et al., 2016). Finally, this work underscores the importance of including both parents in assessments to continue to probe the similarities and differences across mothers and fathers.

Men's own reports have been underutilized in most research. Self-reports are not a substitute for observational data or merely aids in the interpretation of observed patterns. Father reports can provide important information about paternal attitudes, beliefs, and motivations that would aid in informing

us about the ways in which fathers socially construct their identities as fathers (Eggebeen et al., 2013). Examination of how father identities shift across various contexts and family types (e.g., coparent, single-father family, resident vs. nonresident, same-gender parent families, adoptive families, new reproductive technology assisted families) would be useful (Golombok, 2015; Parke, 2013). Work on the cultural images of fatherhood through magazines, television, and movies have profited from reliance on men's own reports and narratives (LaRossa, 2012; Milkie & Denny, 2014) and could be valuable methods for addressing these issues.

Reliance on nonexperimental strategies may be insufficient to address the important issue of direction of effects in work on the impact of fathers on children and families. Experimental strategies have been underutilized in studies of fathers. By experimentally modifying either the type of paternal behavior or level of father involvement, firmer conclusions concerning the causative role that fathers play in modifying their children's and their children's mothers' role in development will be possible. Intervention studies (e.g., Holmes, Cowan, Cowan, & Hawkins, 2013) aimed at modifying fathering behavior provide models for this type of work and recent studies (Pruett, Pruett, Cowan, & Cowan, 2017) that include measures of child, mother, and father development are providing evidence of the impact of changes in fathering behavior on developmental outcomes of all family members. Moreover, these experimental interventions have clear policy implications by exploring the degree of plasticity of fathering behavior. Finally, these interventions can serve as a vehicle for evaluation of alternative theoretical views of fatherhood.

### An Interdisciplinary Perspective on Fatherhood

In many ways, a psychological approach to fathering has a unique identity with its focus on intrafamilial processes, such as actor attitudes, cognitions and beliefs, and the dynamic interchanges between and among family members. However, it is unlikely that we can fully understand fathers without recognizing the contributions of other disciplines. Sociologists inform us about issues of ethnicity, class, inequality, and demographic shifts (Edin & Nelson, 2013), anthropologists alert us to cross-cultural variations (Hewlett & MacFarlan, 2010), whereas economists document shifts in economic opportunities and struggles (Bishai, 2013). Medical professionals provide insights about family illness, disease, and wellness-promoting strategies (Yogman, Garfield, & Committee on Psychosocial Aspects of Child and Family Health, 2016) while evolutionary theorists clarify the trade-offs between the costs and benefits of father involvement for men (Geary, 2016). Additionally, legal scholars offer glimpses into how families are helped or hindered by laws and social policies that directly affect families (Sugarman, 2008). Historians remind us that cross-time shifts in family forms, beliefs, and practices are constantly under revision (Pleck,

2004). Beyond these traditional contributors to the study of fathers, some disciplines such as architecture and urban design have not received sufficient attention (Parke, 2013). The effects of living in multifamily households or in intergenerational housing on father roles are poorly understood. Our challenge is to examine how these innovations in housing arrangements alter various aspects of family life. Finally, coordination between the aforementioned scholars and policy groups such as Promundo serve to translate scholarship to practice on a global level (Levtov, van der Gaag, Greene, Kaufman, & Barker, 2015). As scholars of fathering, we need to understand better how these cross-disciplinary insights modify our process-oriented explanations of father functioning. A fuller understanding of fathering requires an interdisciplinary perspective.

### The Multidetermined Nature of Fathering

In spite of the calls for recognizing the multiple levels of influence on fathering, most studies focus on single or at most several levels of analysis. However, recent work has identified a wide range of factors from biological to individual, couple, family, community, and culture that operate together in determining father behavior. We need more studies that sample across levels of analysis and, in turn, analytic models that begin to reveal the complex mediating and moderating role of factors at these many levels of influence, and how these contexts and levels of influence change over time (see Feldman, 2016; Holmes & Huston, 2010).

### Concluding Thoughts

It is clear that there has been remarkable progress in our understanding of fathering since Lamb's famous pronouncement that fathers were the "forgotten contributors to child development" (1975, p. 245). At the same time, recent advances have revealed clear gaps in our understanding of fathering and challenge us to recognize the often-neglected variability across men in how they execute the father role given cultural and contextual constraints. By addressing these gaps, we will gain a more accurate and more nuanced view of father's roles in children's lives and, in turn, be better positioned to guide policy decisions on behalf of the wide array of contemporary fathers.

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## Contributors

**Lieselotte Ahnert, Ph.D.**, is a Research Professor of Developmental Psychology at the Universities of Vienna and Berlin. Her research is concerned with early social and emotional development (with a focus on attachment) in different contexts, including home and child care centers, children's stress reactivity and early social cognition. She is the Principal Investigator of the Central European Network on Fatherhood.

**David Almeida, Ph.D.**, is a Professor of Human Development and Family Studies and is faculty affiliate in the Center for Healthy Aging at The Pennsylvania State University. His research examines the effects of biological and self-reported indicators of stress on health with a primary interest in the role of daily stress on aging. He has also examined stress processes in specific populations and contexts, such as the workplace and family interactions, parents of children with developmental disabilities, and family caregivers.

**Natasha J. Cabrera, Ph.D.**, is a Professor of Human Development at the University of Maryland, researches father involvement and children's social and cognitive development; adaptive and maladaptive factors related to parenting and cultural variation in ethnic minority families; and, the mechanisms linking early experiences to children's school readiness. Dr. Cabrera has published in peer-reviewed journals on methodology, theory, and the implications of fathering and mothering behaviors on child development in low-income minority families and interventions.

**W. Justin Dyer, Ph.D.**, is an Associate Professor of family and religion at Brigham Young University. His research interests include father involvement and family and religious influences on adolescents.

**Jay Fagan, Ph.D.**, is a Professor in the School of Social Work at Temple University. His research focuses on predictors of low-income nonresidential fathers' involvement with children and the effects of these fathers on young children. He is the Principal Investigator of the Fatherhood Research and Practice Network, a national program that promotes rigorous evaluation of fatherhood programs.

**Mark E. Feinberg, Ph.D.**, conducts basic and applied prevention research on youth, families, and communities, with a particular focus on family-focused prevention. He has made significant contributions to theory and research in areas such as coparenting; sibling relationships; dynamic modeling of real-time family interaction; the epidemiology of adolescent behavior problems; family violence; and the functioning and efficacy of community-level public health initiatives.

**Xin Feng, Ph.D.**, is an Associate Professor of Human Development and Family Science at the Ohio State University. Her research focuses on the early risk factors associated with the onset and development of depressive and anxiety symptoms. She is particularly interested in examining early emotional and cognitive regulation as mechanisms for the transmission of depression between mothers and their children.

**Micah L. Gerhardt, M.S.**, is a doctoral student in Human Development and Family Science at the Ohio State University. His research focuses on children's social and emotional development in the preschool years. He is also interested in measurement and data analysis.

**Richard Gonzalez, Ph.D.**, is the Amos N. Tversky Professor of Psychology and Statistics at the University of Michigan. His research focuses on judgment and decision processes as well as the development of new data analytic methods. He is director of the Biosocial Methods Collaborative at the Institute for Social Research, University of Michigan.

**Damon E. Jones, Ph.D.**, is a Senior Research Associate at Penn State's Bennett Pierce Prevention Research Center, serving as a program evaluator and methodologist for several family and youth behavioral interventions and prevention programs. A focus of his research has been toward understanding the public costs associated with behavior disorders, as well as the potential for cost-effectiveness programs that can reduce family relationship dysfunction and improve childhood developmental outcomes.

**Elizabeth Karberg, Ph.D.**, is a fatherhood expert in the Reproductive Health and Family Formation program area at Child Trends. Dr. Karberg is a developmental scientist who leads research projects related to parent-child interactions with a focus on fathers, how fathers shape children's linguistic, social and regulatory development, and the family contexts that shape parenting and fatherhood.

**Claire M. Kamp Dush, Ph.D.**, is an Associate Professor in the Human Development and Family Science program at the Ohio State University. Her research focuses on intimate relationships quality, formation, and dissolution, and the intersection of gender, work, and family. She is the Principal Investigator

of the National Couples' Health and Time Study, a population-representative study of same and different-gender couples in the United States.

**Rebecca Kaufman, M.A., M.S.W.**, is the former senior research coordinator of the Fatherhood Research and Practice Network (FRPN) at Temple University. She is currently a doctoral student in the sociology department at the University of California, Los Angeles.

**Catherine Kuhns** is a doctoral candidate in the Department of Human Development and Quantitative Methodology at the University of Maryland. Her research interests include parenting in the context of poverty, especially as it relates to children's social and cognitive development. She holds a B.S. in Human Development and Family Studies from the Pennsylvania State University and an M.S. in Teaching English to Speakers of Other Languages from Fordham University.

**Jin-kyung Lee, Ph.D.**, is a postdoctoral scholar in the Prevention Research Center at the Pennsylvania State University. Her research focuses on understanding the mechanisms of mothers' and fathers' parenting and children's social-emotional development. Her research interests include gene and environment interplay, supportive coparenting, and family socio-economic resources.

**Joyce Y. Lee, M.S.W., M.S.**, is a doctoral student in Social Work and Developmental Psychology at the University of Michigan. She has three research interests: (a) Studying the role of fathers and father engagement in child development; (b) Developing and implementing technology-based parent education programs that are inclusive of fathers; and (c) Examining ways to incorporate fathers in preventing child maltreatment and treating its effects on children early on.

**Siwei Liu, Ph.D.**, is an Associate Professor of Human Development and an affiliated faculty of Quantitative Psychology at the University of California at Davis. Her research focuses on statistical methods for analyzing intensive longitudinal data, in particular in the frameworks of multilevel modeling, structural equation modeling, time series analysis, and functional data analysis.

**Jenessa Malin, Ph.D.**, is a Social Science Research Analyst in the Administration for Children and Families' Office of Planning, Research, and Evaluation (OPRE). Her portfolio includes research and evaluation projects related to child welfare and early care and education programs. Dr. Malin began her work at OPRE as a Society for Research in Child Development Executive Branch Policy Fellow. Her contributions to this monograph were conducted while a graduate student at the University of

Maryland, College Park from which she holds an M.A. in Measurement, Statistics, and Evaluation and a Ph.D. in Human Development.

**Brandon T. McDaniel, Ph.D.**, is an Assistant Professor of Human Development and Family Science at Illinois State University. His research focuses on understanding the individual, couple, and family factors that contribute to negative/positive outcomes for families and children. Common threads in much of his research include examining the influence of technology use on parents, children, and family relationships as well as utilizing daily diary and dyadic research methods.

**Bernhard Piskernik, Ph.D.**, is a postdoctoral researcher in Developmental Psychology at the University of Vienna. His research focuses on fathers and the measurement of fathering. He is also interested in machine learning and its applicability in research in Developmental Psychology.

**Paige Safyer, M.S., M.S.W.**, is a doctoral student in Developmental Psychology and Social work at the University of Michigan. Her research focuses on infant social-emotional development within the parenting context. She is also interested in interventions that strengthen the parent–infant attachment relationship.

**Sarah J. Schoppe-Sullivan, Ph.D.**, is a Professor of Psychology at Ohio State University. Her research focuses on coparenting, father–child relationships, and the transition to parenthood, and she specializes in studying families and children using observational and longitudinal methods.

**Matthew M. Stevenson, Ph.D.**, is a postdoctoral therapist in Los Angeles, CA. His research focuses on marital conflict, father–child relationships, and developmental psychopathology. He is also interested in father–child activation theory and subsequent outcomes for children.

**Brenda L. Volling, Ph.D.**, is the Lois Wladis Hoffman Collegiate Professor of Psychology at the University of Michigan. Her research focuses on family relationship functioning and young children’s social and emotional development, and has a particular interest in father–child relationships and integrating family perspectives with longitudinal developmental methods. She is the Principal Investigator of the Family Transitions Study, a longitudinal investigation of changes in children’s adjustment and family adaptation after the birth of an infant sibling.

**Ross D. Parke, Ph.D.**, is a Distinguished Professor of Psychology Emeritus at the University of California at Riverside. His research concerns the role of

fathers in children's development and family-peer relationships. He is the author of *Future Families: Diverse forms, Rich Possibilities*, and co-editor (with Glen Elder) of *Children in Changing Worlds: Socio-Cultural and Temporal Perspectives*.

**Jeffrey (Jeff) T. Cookston, Ph.D.**, is a Professor of Psychology at San Francisco State University. Jeff is interested in families and pays special attention to coparenting, fathering, and divorce. He is particularly interested in how families socially construct their relationships and whether those perceptions explain better physical and mental health.

## SUBJECT INDEX

Page numbers in *italics* represent figures.

### A

ADHD, 91  
aggressive behavior (child), 10  
anthropology discipline, 143  
anxiety (child), 10, 81  
attachment relationships, 10, 50, 53, 61, 74  
attention, child's sustained, 79–93, 108, 110  
Avon Longitudinal Study of Parents and Children, 115

### B

behavior, controlling, 79–83

### C

caregiver/caregiving, 11, 14, 30–31, 39, 101–106  
Child–Parent Relationship Scale, 99  
childrearing belief systems, 14  
chronosystem. *See* ecological systems framework  
cognitive development (child), 50, 55, 58, 60  
comforting behavior, 10  
communication-contact, 101–106, 110  
controlling behavior, 10  
coping strategy, 10, 20, 31  
cultural differences. *See* race/ethnicity differences

### D

daily chores. *See* daily stressors/resources and parent adjustment/family relationships

daily stressors/resources and parent adjustment/family relationships, 18–21  
     between-person variance, 24, 24  
     couple relationship quality, 21, 23, 24, 25–26, 27–32  
     daily chores, 18, 19, 21, 28, 32  
     daily diary method, 19, 21–22, 29, 110  
     daily experiences, 20, 24–31  
     daily time use, 22  
     exercise/physical activity, 19, 20–21, 22, 24, 29–30  
     exposure to child distress, 19, 21, 28, 31–32  
     measurement-burst design, 22, 29, 110  
     parental well-being, 23  
     relationship with infant, 23, 24, 27, 27–30  
     sleep, 18, 19, 20, 21, 27, 30, 31  
     stress, 18, 20, 21, 28, 31–32  
     work hours, 21, 28, 32  
 depression, 18, 31  
 development, proximal process of, 12  
 developmental delay, 91  
 developmental ecological systems perspective. *See* ecological systems framework  
 distress (child), 51, 74. *See also* daily stressors/resources and parent adjustment/family relationships; father involvement in parenting  
 divorce. *See* father, nonresident

## E

Early Childhood Longitudinal Study-Birth Cohort in the United States, 115  
 Early Head Start (EHS), 81  
 Early Head Start Research Evaluation Project (EHSREP), 53, 83, 85  
 ECCRN. *See* NIHCH Early Child Care Research Network  
 ecological systems framework, 9, 11–12, 11, 15, 107–109, 111, 115, 132  
     chronosystem, 15–16, 21  
     daily stressors/resources and parent adjustment/family relationships, 21  
     exosystem, 13–14, 21, 64  
     father–infant activation, 51, 62  
     father involvement in parenting, 64  
     intrusive behavior and child’s sociability and sustained attention, 80, 90  
     macrosystem, 14, 64, 133–134, 135–137, 138, 139  
     maternal gatekeeping, 35  
     mesosystem, 13, 64, 133, 138, 139  
     microsystem, 12–13, 15, 21, 35, 51, 62, 64, 80, 90, 107, 116  
     nonresident fathers’ contact with children, 95, 96  
     understanding fathering, mothering, coparenting, 112–113  
 ecological theory of human development, 12  
 economy discipline, 143

EHS. *See* Early Head Start  
EHSREP. *See* Early Head Start Research Evaluation Project  
emotional support, 19  
emotion regulation, 10, 79–93  
employment opportunities, 14, 115, 138–139. *See also* daily stressors/resources  
and parent adjustment/family relationships  
ethnicity differences. *See* race/ethnicity differences  
ethnic/race. *See* racial/ethnic differences  
evolutionary theory discipline, 143  
exosystem. *See* ecological systems framework  
externalizing behavior (child), 10

## **F**

Family Foundation, 21  
family systems theory/approach, 8, 12, 19, 34, 35, 46, 111, 113,  
138–140  
father, nonresident  
contact with children, 13, 94–106, 117, 133–138  
controls, 99–100  
divorce, 13, 15–16  
immigration status, 13, 115, 136–137  
incarceration, 13, 115, 135–138  
measures of engagement, 95, 98–106, 110  
military deployment, 13, 115, 135–138  
part of diverse family/social systems, 113  
selective fathering, 134  
theoretical considerations, 95–97  
transnational, 115, 135–138  
types of contact, 16, 94–106, 135–138  
variables, 99  
*See also* race/ethnicity differences  
fatherhood program, 95, 96, 98  
fathering/father  
activation profile, 50, 58  
as socialization agent, 140  
characteristics, 66, 68–69, 70–71, 74–77  
conceptualizing, 108–109  
disengaged profile, 50, 53–55, 58  
historical context, 140  
importance to child development, 112  
intrusive profile/behavior, 10, 52–55, 58, 60, 79–93  
latent classes, 56, 58, 59  
multidetermined nature, 143  
nonviolent, 14  
sensitive profile, 10, 50, 52, 54–55, 60  
sociocultural/global context (*see* race/ethnicity differences)

- stay-at-home, 112, 113
- supportive profile, 50, 53–55, 56, 58, 60
- See also* parenting
- fathering and child development
  - assessment tools, 115, 132, 140–142
  - broadening representation, 115, 132
  - childcare participation, 14
  - daily stressors and resources, 18–34
  - economically disadvantaged fathers, 132–135 (*see also* socioeconomic status/characteristics)
  - father–child closeness, 97–106
  - father–infant activation, 50–63
  - father involvement in parenting, 64–78, 133–135
  - future studies, 9, 107–117, 132–144
  - interdisciplinary perspective, 132, 142–143
  - intrusive behavior and child’s sociability and sustained attention, 79–93
  - issues and conceptual framework, 7–17
  - measuring father–child relationships, 109–110
  - new parenting constructs and child development, 113–114, 132
  - nonresident father contact with children, 94–106, 135–138
  - part of diverse family/social systems, 113
  - reports of maternal gatekeeping, 35–49
  - research questions, 115
  - See also* race/ethnicity differences; socioeconomic status/characteristics
- father–infant activation, 50–63
  - evidence for activation fathering, 52–53
  - infant–parent attachment, 55
  - latent classes of fathering, 52, 56, 57, 58
  - parenting behaviors, 54–55
  - person-centered approach (LPA), 50–63, 111
- father involvement in parenting, 64–78
  - characteristics of fathers and families, 66, 68–69, 70–71, 74–77
  - measures of paternal involvement, 67–68
  - nature of parental involvement, 65
  - person-centered approach (LPA), 65, 69, 72, 76, 111
  - profiles of involvement, 72–77, 72, 75, 111
  - relations with fathers’ characteristics and families, 74–75
  - versatility and duration of activities, 67–68, 68, 73, 73
- Father Involvement with Toddlers Substudy (FITS), 83, 85
- FITS. *See* Father Involvement with Toddlers Substudy
- Fragile Families and Child Wellbeing Study, 95, 115, 133

## G

- gatekeeping, reports of maternal, 15, 35–49, 60, 65, 74
- confirmatory factor analyses (CFA), 40, 41
- cultural context, 47–48

dyadic adjustment, 40, 45  
father report, 41, 45  
gate opening/closing, 36, 38, 40, 41, 45, 110, 117  
maternal facilitation, 39–40, 110  
maternal negative control, 39–40  
measurement invariance testing, 37–38, 41–45, 42, 44, 141  
mother report, 42–43, 45, 46  
gay/lesbian families. *See* same-sex families  
gender, 30–31, 32, 36, 43, 113

## H

history discipline, 143

## I

IMAGES. *See* International Men and Gender Equality Survey  
immigration status. *See* father, nonresident  
incarceration. *See* father, nonresident  
International Men and Gender Equality Survey (IMAGES), 116  
International Working Group on Advancing Research and Measurement on  
  Fathering and Children's Development, 8–9, 111, 117  
intrusive behavior and child's sociability and sustained attention, 79–93  
  control variables, 86  
  dyadic affect, 86, 87–88, 90, 91  
  event-based coding, 80, 82, 85, 89–90, 92, 109, 141  
  theoretical framework, 79–81

## L

language development, 10  
legal systems and laws, 14, 133, 143  
lesbian families. *See* same-sex families  
Longitudinal Study of Australian Children, 116  
LPA. *See* father–infant activation; father involvement in parenting

## M

MenCare campaign, 14–15  
mental development (child), 10  
mesosystem. *See* ecological systems framework  
microsystem. *See* ecological systems framework  
military deployment. *See* father, nonresident  
MLM. *See* multilevel regression model  
mothering/mother

- construct, 109
- employment, 14
- intrusive behavior, 79–93
- latent classes, 58, 58, 59
- negative parenting behavior, 10
- part of diverse family/social systems, 113
- role strain, 14
- well-being, 18–28
- See also* gatekeeping; parenting

multilevel regression model (MLM), 23

## N

- negative affect, expression of, 10
- neighborhood/community, 14
- New Parents Project, 38
- NICHD
  - Early Child Care coding scales, 85
  - Early Child Care Research Network (ECCRN), 52, 54

## O

- overcontrol, parental. *See* intrusive behavior and child's sociability and sustained attention

## P

- Parent Development Interview, 66
- Parental Regulation Inventory (PRI), 36–37, 38, 47
- parenting
  - activation parenting, 54
  - adjustment and family relationships, 18–34
  - average (latent class for fathers), 52
  - challenging parental behavior, 63
  - competent behaviors, 97
  - coparenting conflict, 15, 18
  - couple relationship quality, 21, 23, 24, 25–26, 27–32, 65–66, 74, 107, 115, 133
  - emotion-related practices, 79–81
  - family relationships, 11
  - father–infant activation and parenting behaviors, 52–55
  - fathering, 10
  - father involvement in parenting, 64–78
  - intrusive behavior, 79–93, 109
  - nature of parental involvement, 65
  - overcontrol (*see* intrusive behavior and child's sociability and sustained attention)

- parental well-being, 20, 23–32
- personal and material resources, 14
- profiles, 50
- relationship satisfaction, 18–21, 23
- responsiveness, 10, 50
- satisfaction, 97, 100–106, 110
- self-efficacy, 97, 100–106, 110
- self-esteem, 97
- sexual relations, 18, 24, 65
- sociocultural/global context, 114–115
- supportiveness, 10
- See also* fathering/father; mother/mothering
- phone calls. *See* father, nonresident
- physical activity. *See* daily stressors/resources and parent adjustment/family relationships
- play
  - father–infant activation, 51, 59
  - father’s physical playfulness, 10
  - rough-and-tumble play (RTP), 10, 51–52, 59, 62–63, 108, 114, 139, 140
- PRI. *See* Parental Regulation Inventory
- Promundo, 14, 116, 143

## R

- racial/ethnic differences, 14, 47–48, 105, 109, 114–115, 117, 132, 134, 135, 137–140, 142
- risktaking and father–infant activation, 51, 108, 142
- rough-and-tumble play (RTP). *See* play
- RTP. *See* play

## S

- same-sex families, 140
- self-regulation (child), 10, 51
- sensitivity. *See* fathering/father
- sleep. *See* daily stressors/resources and parent adjustment/family relationships
- social competence (child), 10, 50, 51, 79–93, 108, 140
- social network, 13–14
- socioeconomic status/characteristics, 14, 74, 77, 109, 110, 117, 132–135, 133–134
- socioemotional skills (child), 81–82
- sociology discipline, 142–143
- sociopolitical climate/social policies, 14
- stimulating/high verbal (latent class for fathers), 52

strange situation procedure (SSP), 53–55, 61–62  
stress. *See* daily stressors/resources and parent adjustment/family  
relationships

## **T**

texting. *See* father, nonresident

## **V**

vocabulary development, 10

## **W**

workplace relationships, 13–14

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