

FAMILY CONTEXT AND CHILDREN'S EARLY LITERACY SKILLS: THE ROLE OF
MARITAL FUNCTIONING AND PARENT DEPRESSIVE SYMPTOMS

By

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ABSTRACT

FAMILY CONTEXT AND CHILDREN'S EARLY LITERACY SKILLS: THE ROLE OF MARITAL FUNCTIONING AND PARENT DEPRESSIVE SYMPTOMS

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This dissertation examines the influence of family functioning on children's early academic development in two separate but related studies. The results of these studies contribute to our understanding of how complex family processes influence children's early literacy skills. In particular, I focus on marital functioning and the family emotional environment in Study One, and parent depressive symptoms in Study Two.

Study One examines the influence of marital functioning on children's early literacy skills among 539 families with a child enrolled in a preschool in the Midwest. I take a family systems approach to investigate the role of the family emotional environment and parents' home learning related behaviors as mediators in the relation between marital functioning and children's early literacy skills. In addition, I examine the unique contribution of fathers to these complex family processes. This study identifies the marital relationship and family emotional expressiveness as important contextual factors that influence children's early literacy skills. Additionally, the process through which this influence occurs was unique for fathers. The results of the current study emphasize the importance of considering the broader family system in relation to children's early literacy skills and point to potential considerations for practitioners across multiple settings. Further, the current study indicates that marital and family factors differ for mothers and fathers and that it will be important to develop interventions that target these marital and family factors and parent-child interactions in ways that are relevant for both parents.

Study Two examines the influence of mothers' and fathers' depressive symptoms on preschoolers' early literacy skills among 630 families. I utilize the Actor-Partner Interdependence Model within a structural equation modeling framework to examine the relation between parents' depressive symptoms and their own and their partner's home learning related parenting behaviors. Further, I examine home learning-related parenting as a mediator of the relation between parent depressive symptoms and children's early literacy skills. Notably, I find an actor effect of fathers' depressive symptoms, but not mothers', on home learning-related parenting such that fathers who experience more depressive symptoms engage in fewer home learning activities. I also identify a partner effect of fathers' depressive symptoms on home learning-related parenting such that increases in fathers' depressive symptoms predict decreases in mothers' home learning activities. Finally, fathers' depressive symptoms negatively relate to children's early literacy skills by influencing mothers' home learning-related parenting. Findings from the present study highlight the importance of considering the potential negative effects of parent depressive symptoms on children's early literacy skills. Further, these findings highlight the importance of including both mothers and fathers in future research, policy, and interventions concerned with the influence of parents' depressive symptoms on children's development.

As a whole, these studies suggest it may be useful for researchers interested in examining the role of the HLE in fostering children's skills to begin approaching these studies from a family process perspective that conceptualizes HLE-related parenting as being embedded in a context of broader family functioning. Additionally, the results of these two studies provide foundational empirical evidence that is essential for the development of more comprehensive interventions that target improvement in marital, parental, and familial functioning, in addition to children's overall academic wellbeing.

To all those who understand the struggle of learning to read, recognize the privilege of being literate, and strive to extend that privilege to all.

“The more that you read, the more things you will know.
The more that you learn, the more places you'll go.”

- Dr. Seuss, *I Can Read with My Eyes Shut!*

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CHAPTER 1: INTRODUCTION

Purpose

This dissertation uniquely addresses significant gaps in the literature regarding the association between parent psychopathology, the marital relationship, family emotional and educational environments and children's academic development. In Study One I examine the influence of the parent marital relationship, levels of family emotional expressiveness, and the home learning environment on children's academic skills. In addition, I explore whether fathers contribute uniquely to these family processes. In Study Two I investigate the influence of parental depressive symptoms on children's academic outcomes as mediated by the home learning environment. In addition I explore whether parents influence their partners in these processes. The results of this dissertation project advance our understanding of how these complex familial processes work together to influence children's academic development. Findings also provide foundational empirical evidence that is essential for the development of more comprehensive interventions that target improvement in marital, parental, and familial functioning, in addition to children's overall academic wellbeing.

Rationale

The U.S. Department of Health and Human Services Healthy People 2020 initiative identified improving children's social-emotional, learning, language and cognitive development, increasing positive parenting, fostering close parent-child relationships and improving rates of shared reading as key objectives in the promotion of general health in the American people (U.S. DHHS, 2010). In addition, there is a widely held concern that significant portions of elementary-aged students in America are not reading well enough to perform adequately in school (National Reading Panel, 2000). This concern is amplified by research demonstrating that trajectories of

reading development are established in preschool and are surprisingly stable and resistant to change (Catts, Bridges, Little, & Tomblin, 2008; Skibbe, Grimm, Stanton-Chapman, Justice, Pence & Bowles, 2008). Additionally, children's emergent literacy skills shape future reading development (National Early Literacy Panel, 2008; Sénéchal, 2006; Storch & Whitehurst, 2002), which has been related to academic performance in grade school (Denton, West, & Walston, 2003; Duncan et al., 2007) through young adulthood (Baydar, Brooks-Gunn, & Furstenberg, 1993; Cunningham & Stanovich, 1997), and is even predictive of career and economic potential (Storch & Whitehurst, 2001).

The acquisition of children's emergent literacy skills is heavily influenced by the home learning environment (HLE; Skibbe, Justice, Zucker & McGinty, 2008; Storch & Whitehurst, 2001), which includes parenting practices that are specifically aimed at enhancing early educational outcomes (Sénéchal, 2006; Sénéchal & LeFevre, 2002; Whitehurst & Lonigan, 1998). However, despite the importance of academic skills for young children's development, and research attesting to the importance of HLE-related parenting behaviors in developing these skills, the influence of broader family functioning on children's academic outcomes has received little attention (see Belsky & Fearon, 2004; Froyen, Skibbe, Bowles, Blow, & Gerde, 2013).

In contrast, the relationship between parental psychopathology, marital and family environments, and children's social-emotional development has been well established (Cummings & Davies, 1996; Cummings, Keller, & Davies, 2005; Fosco & Grych, 2007). Emerging research indicates that parental psychopathology (Augustine & Crosnoe, 2010; Fagan & Lee, 2013), the quality of the marital relationship (Belsky & Fearon, 2004; Ghazarian & Buehler, 2010), and the family emotional environment (Froyen et al., 2013) have potentially important implications for children's academic development as well. However, the vast majority

of this work is based almost entirely on maternal reports (Lamb, 2010). While research indicates that fathers are taking on increased responsibilities at home (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000), and the research community at large has begun to recognize the valuable and unique contributions fathers make to child outcomes (Downer, Campos, McWayne, & Gartner, 2008), the role of fathers in the family, in parenting, and in child outcomes, is not well understood (Lamb, 2010).

In general, the extant literature points to disrupted parenting practices as one explanatory mechanism for how parental psychopathology and problematic marital relationships affect child socio-emotional outcomes. These pathways, at least for the marital relationship, are beginning to be supported for child academic outcomes as well (Belsky & Fearon, 2004; Froyen, et al., 2013). However, relatively little is known about how these complex family processes influence children's early academic skills or the HLE-related parenting behaviors associated with these skills. As such, family systems theory will be used to provide a framework for investigating the family processes that influence children's early academic skills. This framework is further explicated below.

Theoretical Framework

The proposed dissertation project builds upon family systems and human ecological theories that attempt to explain the various ways that individuals are influenced by the systems that surround them (Bronfenbrenner & Morris, 2006; von Bertalanffy, 1976). The human bioecological model suggests that development of the individual occurs through processes and interactions with the persons and objects in their environmental context (Bronfenbrenner & Morris, 2006). The development of the human bioecological model constitutes a significant shift in the literature as it provided a framework for understanding and investigating the

developmental process from a whole-child perspective. Family systems theory, which emerged from general systems theory, proposes that in order to truly understand the individual, we must study their context (Broderick, 1993; von Bertalanffy, 1976). These two theoretical models have been the basis of a vast body of literature that confirms the importance of considering a child's developmental context when attempting to study development. Out of this very broad field of study has come research confirming the family's central role in the cognitive, social, and emotional development of children (Bronfenbrenner & Morris, 2006), while at the same time generating more specified theories and models that are utilized to support investigations into the specific processes and pathways through which this influence occurs.

Bronfenbrenner's bioecological model suggests that child development is influenced by several systems including microsystems, mesosystems, exosystems, and the macrosystem, all of which are imbedded in the chronosystem (Bronfenbrenner & Morris, 2006). Microsystems are the immediate contexts with which the child has direct interaction, for example home, school, and church. Mesosystems are comprised of the points of intersection between two or more of the child's microsystems. For example, when the child and their parents attend an open house at the child's school, two of the child's microsystems come into direct contact and interaction; this is representative of a child's mesosystem. Bronfenbrenner's model also discusses the influence of exosystems, the systems that influence the child but with which the child does not have direct contact, such as a parent's workplace, and the macrosystem, comprised of the larger culture and environment in which the rest of the child's systems are embedded.

This project applies a family systems lens to the bioecological model, allowing the current research to hone in on the microsystems most pertinent to identifying the ways in which the family influences children's early literacy skills. These systems include the family as a

whole, the parent-child subsystem, the marital subsystem, and, in addition, the intersection (i.e. mesosystem) between home and school that occurs during HLE-related parent-child interactions. Research in this area has identified the marital or parental subsystem as a significant source of influence in the developmental process (Broderick, 1993). The aspects of the marital or parental subsystem found to influence this process range from the structural (i.e. one-parent vs. two-parent homes; Bronfenbrenner & Morris, 2006; divorce; Amato, 2010), to the interactional (marital satisfaction and conflict; Cummings & Davies, 1996), and the internal/personal (psychopathology, Cummings & Davies, 1994). Research in this area suggests that these various aspects of the marital or parental subsystem influence child development through parenting (Belsky, 1984; Cummings, Davies, & Campbell, 2000). Belsky (1984) outlines a process model of the determinants of parenting and their effect on child development (see Figure 1). This theoretical model has driven the field of family process research concerning the influence of various familial systems on child development (Cummings, et al., 2000).

As can be seen in the model provided in Figure 1.1, it has been proposed that parenting is one of the primary ways through which other family processes, such as parent psychological functioning (captured as a part of parent personality; Belsky, 1984) and marital relations, influence child development. In the past, this model has been expanded upon to provide a more detailed theoretical framework for understanding how the marital relationship influences child adjustment (see Figure 1.2; Cummings et al., 2000). The Cummings and colleagues (2000) model provides a broad, detailed framework that incorporates aspects of parent psychological functioning, parenting practices, and the family emotional environment in explaining the ways in which these family processes influence children's psychological adjustment.

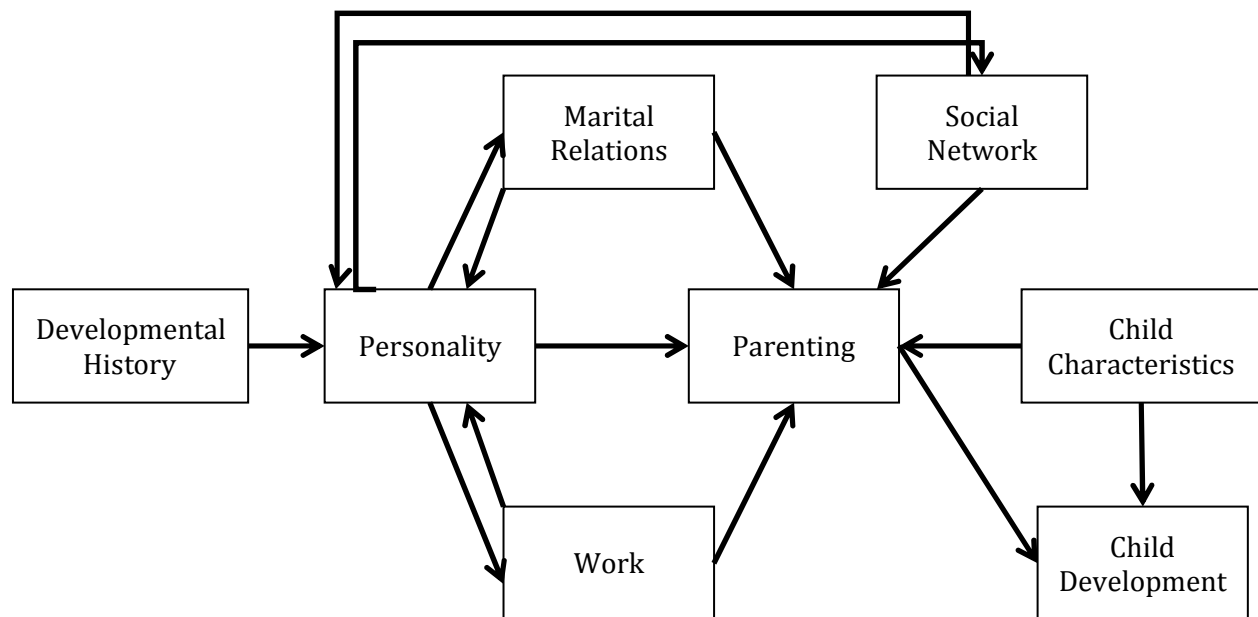


FIGURE 1.1: A Process Model of the Determinants of Parenting. From Belsky (1984).

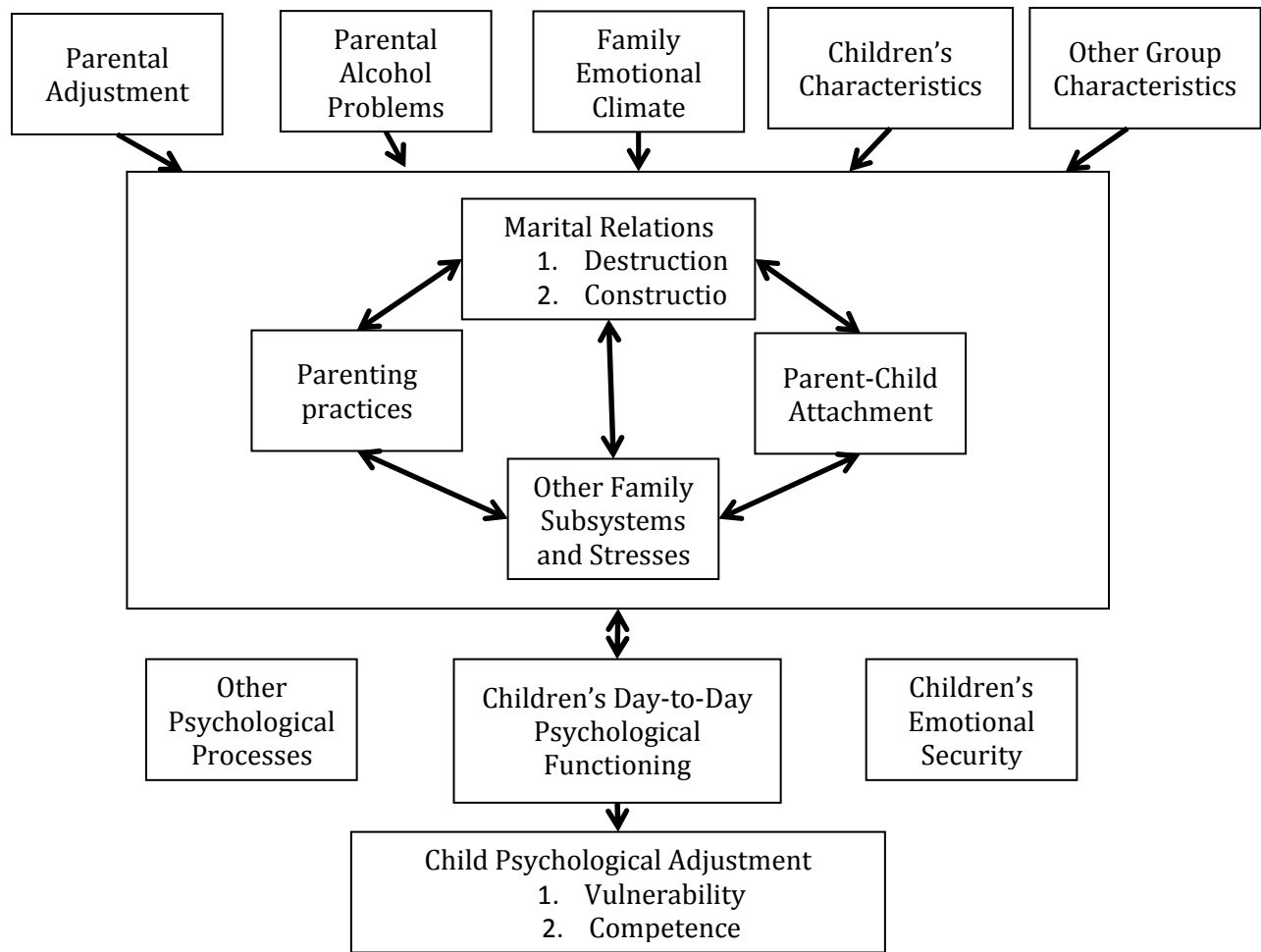


FIGURE 1.2. Theoretical Framework for the Effects of Marital Relations on Children.

From Cummings, Davies, & Campbell (2000).

I have developed an overarching conceptual framework that builds upon and adapts both the Belsky (1984) model and the Cummings et al. (2000) model to guide the research questions, hypotheses, and analyses set forth in this dissertation project. This conceptual framework is presented in Figure 1.3 and shows my overarching theory, informed by the bioecological model and family systems theory, for the ways in which the concepts investigated in this dissertation project are related.

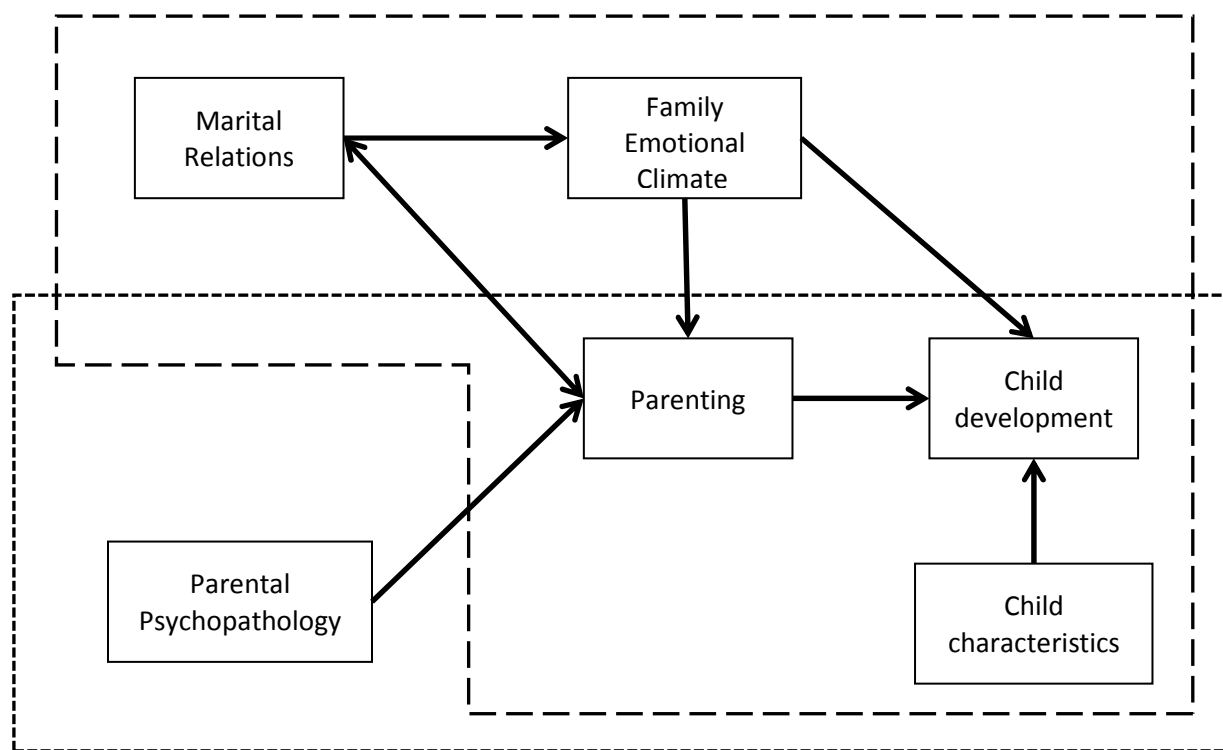


FIGURE 1.3. Overarching Conceptual Framework for the Current Dissertation. Adapted from Belsky (1984) and Cummings, Davies, & Campbell (2000).

Current human bioecological and family systems theory suggests that aspects of the marital relationship influences the context in which children develop, including the family emotional climate and, though far less well-researched, HLE-related parenting (Froyen et al., 2013). Current theory and research also suggests that levels parent depressive symptoms have an influence on the environment in which children are developing and this includes both the emotional and home learning environments (Kohl, Lengua, McMahon, 2000). In the studies contained within this dissertation I am specifically interested in the influence of these parent, marital, and family factors on children's early literacy skills.

This overarching framework provides the theoretical basis for the current dissertation project, however it is a very broad, complex framework that does not translate readily into a single, workable statistical model. As such, for the purposes of this dissertation I will utilize this conceptual framework to guide the research questions, hypotheses, and analyses set forth in two distinct studies. The first will examine the part of the model comprising marital relations, the family emotional climate, parenting, and children's development. The second study will examine the paths in the model concerning parental psychopathology, parenting, and children's development. This overarching conceptual framework presents the goals of these two studies within the context of current theory and research on these family processes and their influence on child outcomes, which are more fully outlined in the individual studies presented below.

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CHAPTER 2: STUDY ONE

Marital Functioning and Early Literacy: A Family Systems Perspective

ABSTRACT

The current study examines the influence of marital functioning on children's early literacy skills among 539 families with a child enrolled in a preschool in the Midwest. I take a family systems approach to investigate the role of the family emotional environment and parents' home learning related behaviors as mediators in the relation between marital functioning and children's early literacy skills. In addition, I examine the unique contribution of fathers to these complex family processes. This study identifies the marital relationship and family emotional expressiveness as important contextual factors that influence children's early literacy skills. Additionally, the process through which this influence occurs was unique for fathers. The results of the current study emphasize the importance of considering the broader family system in relation to children's early literacy skills and point to potential considerations for practitioners across multiple settings. Further, the current study indicates that marital and family factors differ for mothers and fathers and that it will be important to develop interventions that target these marital and family factors and parent-child interactions in ways that are relevant for both parents.

Introduction

As the relational and emotional hub of the family (Davies, Sturge-Apple, Woitach & Cummings, 2009), the parental relationship plays a critical role in establishing the emotional and relational structure of the family. Additionally, the quality of the marital relationship has significant implications for both parent-child interactions (Jouriles & Farris, 1992) and individual outcomes for children (see Davies & Cummings, 1994 for review). This is particularly significant for young children, who research shows spend more time under the direct care of parents than under that of other caregivers (Hofferth & Sandberg, 2001). As such, it is essential that research pursue specificity in regard to the influence of broader, marital, familial, and parental processes on the development of young children.

One way of capturing a more complete picture of the influence of these processes is to include both mothers and fathers in this research. There is theoretical and empirical evidence to suggest that it is important to include fathers when conducting research on the influence of family functioning on child development (Bronfenbrenner & Morris, 2006; Marsiglio, Amato, Day, & Lamb, 2000), yet the majority of studies in this area of the literature are based on mother report (Cummings & Davies, 2002). Given the change in fathers' roles in the family and involvement in parenting in the past half century (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000), it is crucial that we conceptualize both the family and parenting as more than mothers' perspectives alone and make the inclusion of fathers a priority (Lamb, 2010).

The need to consider both mothers and fathers is supported by research that suggests that maternal and paternal perspectives on marital functioning differentially affect parenting and the family emotional environment (Sturge-Apple, Davies, & Cummings, 2006a), as well as outcomes for children (Sturge-Apple, Davies, & Cummings, 2006b). For example, for fathers,

marital conflict is associated with more vague or confusing commands, but this relationship does not hold for mothers (Jouriles & Farris, 1992). In addition, fathers' emotional unavailability more strongly predicted increases in child psychological issues than did mothers' emotional unavailability (Sturge-Apple et al., 2006b). Further, fathers make unique contributions to child outcomes with research consistently showing an effect of fathers above and beyond the contributions of mothers (Parke, 2002; Stolz, Barber, & Olsen, 2005). Additionally, fathers' parenting may also be more susceptible to marital dissatisfaction than is mothers' parenting (Nelson, O'Brien, Blankson, Calkins, and Kean, 2009).

However, findings regarding the differential influence of mothers and fathers in the literature are sometimes contradictory and these differences are not yet well understood (Coiro & Emery, 1998; Cummings & Davies, 2002; Sturge-Apple et al., 2006a). For example, Sturge-Apple and colleagues (2006b) found that mothers' emotional unavailability was impacted by both withdrawal and hostility in the marital relationship, whereas fathers' was only related to withdrawal, indicating a stronger influence of marital dysfunction on mothers. One reason for this inconsistency in the literature may be that many of these studies examine mothers and fathers in separate analyses, which fails to take into account the interdependent nature of these data (Kenny, Kashy, and Cook, 2006). By estimating the influence of mothers and fathers simultaneously we may be able to more accurately assess the effect of marital functioning on the family emotional environment, parenting, and child outcomes (Kenny et al., 2006).

In addition to our incomplete understanding of the differential influence of mothers and fathers, research into the influence of the marital relationship and family emotional environment has focused primarily on child socio-emotional development. There is abundant research demonstrating the deleterious effect of marital dysfunction on children's social, behavioral, and

emotional adjustment. For example, the negative effect of marital conflict on children's internalizing and externalizing behaviors has been replicated in numerous studies (see Cummings & Davies, 1994; Grych & Fincham, 1990 for reviews). In addition, emerging research in this area suggests that marital dysfunction is detrimental to children's early academic skills (Belsky & Fearon, 2004; Fagan, 2013; Froyen, Skibbe, Bowles, Blow, & Gerde, 2013), but there are several limitations to this body of research.

The majority of studies that examine the influence of the marital relationship on academics focus on divorced populations (Amato, 2010; Fagan, 2013), neglecting young children in intact families who may be experiencing normative levels of marital discord or dissatisfaction. This is significant given findings that suggest that marital discord has an impact on child development in the time prior to divorce (Amato, 1993; Sun & Li, 2001). Further, research on community samples with relatively low levels of marital distress consistently demonstrates that the marital relationship has implications for children in emotional, social, and academic domains (Grych, Fincham, Jouriles, & McDonald, 2000; Froyen et al., 2013).

In addition, academic functioning is most commonly conceptualized using approximate measures, including children's grades (Ghazarian & Buehler, 2010), academic functioning across content areas (Sun & Li, 2001), or teacher perceptions of general academic competence (Bascoe, Davies, Sturge-Apple & Cummings, 2009) rather than directly testing children's specific skills. Assessments of children's specific skill sets allows for the examination of factors that influence specific developmental domains. Further, teachers may not be the best reporters of children's academic competence, as they may have difficulties separating academic from social competencies (Ford, 1982). In sum, the literature in this area neglects the influence of intact

families' marital and family functioning on the early academic skills that are consistently linked to future academic and professional success, such as early literacy skills .

Children's ability to acquire foundational early literacy skills, such as letter knowledge (Foulin, 2005; Storch & Whitehurst, 2002), decoding (Baydar, Brooks-Gunn, & Furstenberg, 1993), and phonological awareness (Lonigan, Schatschneider, Westberg, & The National Early Literacy Panel, 2008), significantly predict children's later reading skills even when children's socioeconomic status, IQ, verbal memory, and vocabulary are taken into account (Bryant, MacLean, Bradley, & Crossland, 1990; MacLean, Bryant, & Bradley, 1987; Wagner & Torgesen, 1987; Torgesen, Wagner & Rashotte, 1994). It is well documented in the literature that gaps in reading ability are established early, are resistant to change, and tend to widen as children age (Bast & Reitsma, 1998; Catts, Bridges, Little, & Tomblin, 2008; Foster & Miller, 2007; Skibbe et al., 2008). In addition, children's early literacy skills have been related to academic performance through high school and even predict future career and economic outlooks (Storch & Whitehurst, 2001).

The literature suggests that there are many ways that parents support children's early literacy skills, including things such as parent involvement, both at home, school, and in the community (Hindman, Miller, Froyen, & Skibbe, 2012), all of which have been shown to positively influence children's early academic skills (Epstein, 1995). In addition to parental involvement, parents are instrumental in creating the educational environment in which children are embedded at home, typically referred to as the home learning environment (HLE). The HLE is conceptualized in a variety of ways, including the parents' own literacy activities, materials available in the home (e.g., books, magazine subscriptions, and library cards), and specific parenting practices that are aimed at enhancing children's educational outcomes.

Research overwhelmingly indicates that HLE-related parenting behaviors in which parents engage are hugely influential in shaping children's early academic outcomes. Research shows that one of the most important assets for preschool-aged children is a home environment in which the parents are actively involved in engaging their child in activities aimed at academic enhancement (Bjorklund, Hubertz, & Reubens, 2004; Bjorklund & Rosenblum, 2001; Cannon & Ginsburg, 2008; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Morrison & Cooney, 2002; Storch & Whitehurst, 2001). While much of this research focuses specifically on shared reading, there is evidence that a broad range of HLE activities promote children's early academic skills (Sénéchal, 2006; Storch & Whitehurst, 2001). For example, deliberate teaching of letters and sounds and engagement in writing activities fosters gains in letter knowledge and phonological awareness (Hindman, Connor, Jewkes, & Morrison, 2008; Justice & Ezell, 2000; Justice & Ezell, 2002). In addition, parent-child conversation, in addition to shared book reading, promotes vocabulary development (Sénéchal, 2006; Sénéchal, LeFevre, Hudson, and Lawson, 1996; Sénéchal, Thomas, & Monker, 1995). What parents do in the HLE when children are young affects children's skills not only concurrently, but also helps children to be successful later in their academic careers (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Cunningham & Stanovich, 1997; Griffin & Morrison, 1997).

Similarly to research conducted on marital relations, research concerning the ways in which parents work to improve children's literacy skills is based almost exclusively on maternal report (Hindman & Morrison, 2012; Powell, Son, File, & Froiland, 2012; Roberts, Jurgens, & Burchinal, 2005; Rodriguez & Tamis-LeMonda, 2011). Father involvement has been increasing steadily over the past 20 years (Sayer, Bianchi, & Robinson, 2004; Cabrera et al., 2000) and research shows that, although their involvement is still less than that of mothers (Clark & Foster,

2005; Duursma, Pan, & Raikes, 2008), they are still engaging in HLE-related parenting behaviors with sufficient frequency to influence children's skills (Duursma et al., 2008; Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). In addition, research is beginning to show that fathers' involvement in HLE-related parenting behaviors uniquely contributes to child outcomes (Duursma et al., 2008). These findings highlight the need to include fathers in research examining not only the influence of fathers' HLE-related behavior, but also their contribution to the broader family emotional environment. As such, including fathers in this research will allow for the examination of how functioning of the marriage and family as a whole unit influences the work that parents do to promote early academic skill development.

There is evidence to suggest that the active, HLE-related, supports that parents provide to children are not the only way that parents can support their children's early literacy development (Belsky & Fearon; 2004; Froyen et al., 2013). There are several processes through which the marital relationship may, directly or indirectly, influence children's outcomes. The spillover hypothesis suggests that the emotional nature of one relationship in the family system, such as the marital relationship, spills over into other areas (Easterbrooks, Emde, Hinde, & Hinde, 1988; Repetti, 1987). Research suggests that the family emotional environment is one area that is influenced by marital functioning. Family emotional expressiveness, or the principal pattern of displaying verbal and non-verbal expressions of emotion within the family as a whole (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995), is influenced by the quality of the marital relationship. For example, higher levels of maternal marital satisfaction have been linked to more positive expressiveness (Froyen et al., 2013) and lower levels of maternal marital satisfaction have been linked to greater negative expressiveness (Froyen et al., 2013; Kolak & Volling, 2007; Stocker, Ahmed, & Stall, 1997). In addition, marital relationships that are high in conflict and

low in satisfaction are associated with higher levels of negative emotional expressiveness (Halberstadt et al., 1995; Wong, McElwain, & Halberstadt, 2009). Finally, positive and negative parental expressiveness have been shown to moderate the relation between marital conflict and children's internalizing and externalizing problems (Fosco & Grych, 2007). In addition, positive expressiveness has been shown to mediate the relation between mothers' marital satisfaction and children's early literacy skills (Froyen et al., 2013).

Research and theory in this area also suggests that, beyond the overall emotional environment, parent-child interactions are one of the primary ways through which other family processes, such as the quality of the marital relationship, influence child development (Belsky, 1984; Cummings, Davies, & Campbell, 2000; Erel & Burman, 1995). Family emotional expressiveness has been shown to influence various aspects of parenting. Parents' reports of expressiveness are related to parents' ability to cope with the stress of parenting young children above and beyond the contributions of marital quality (Kolak & Volling, 2007). In general, the emotion that parents display directly influences the parenting environment that children experience and negative emotions are directly linked to inferior parenting skills (Dix, 1991).

When it comes to the influence of the family emotional environment on parenting, one aspect that remains understudied is the way in which family expressiveness influences how parents actively teach their children academic skills, referred to here as HLE-related parenting practices. HLE-related parenting behaviors are considered to be a subset of more general parenting (Hindman & Morrison, 2012) and emerging research suggests that they are influenced by marital and family processes in similar ways as other aspects of parenting (Froyen et al., 2013). For example, marriages high in conflict are characterized by reduced parent involvement, including less time engaging in play, shared reading, and social activities with their child

(Buehler & Gerard, 2002), some of which are examples of HLE-related parenting behaviors. In addition, mother's ratings of family positive expressiveness have been shown to directly predict mothers' own HLE-related parenting behaviors (Froyen et al., 2013), and, together with the HLE, mediate the relation between marital satisfaction and children's early literacy skills. Taken together these findings suggest that the family emotional environment is one pathway through which marital functioning influences children's early literacy skills.

Family systems and human ecological theories attempt to explain the various ways that distal and proximal processes of the systems surrounding individuals are influential in their development (Bronfenbrenner & Morris, 2006; von Bertalanffy, 1976). This theoretical framework has driven the field of family process research concerning the influence of various familial systems on child development (Belsky, 1984; Cummings et al., 2000). However, the literature has not consistently taken a family process approach to the study of the broader aspects of family functioning that influence HLE-related parenting and children's early literacy skills. In particular, the literature has not consistently included fathers despite a rising awareness of the necessity of their inclusion (Lamb, 2010). As a result, the literature reviewed above is based primarily on mothers' perceptions and may not accurately reflect the true nature of relations among constructs such as marital functioning, family expressiveness, HLE-related parenting, and children's early literacy. In addition, the extent to which fathers contribute uniquely to these complex family processes has yet to be determined. By taking a whole family perspective I will simultaneously estimate the influence of mothers' and fathers' marital functioning on the family emotional environment, parenting, and child outcomes. Investigating these effects requires a sophisticated application of structural equation modeling that has not been utilized in the past when examining the influence of marital and family functioning on children's early literacy

skills. In doing so it will be possible to estimate these relations with greater accuracy and interpret results with greater confidence.

The Current Study

The goals of the current study are to construct a family process model to capture the influence of these complex family factors on children's early literacy skills. Informed by family systems theory and the human bioecological model (Bronfenbrenner & Morris, 2006) and the research literature outlined above, I expect the distal processes of marital functioning and family emotional expressiveness to be related to the more proximal processes encompassed by HLE-related parenting, which will then be directly associated with children's early literacy skills. Specifically, I expect higher levels of couple functioning, as determined by high levels of satisfaction and low levels of conflict, to be related to more positive and less negative expressiveness. In addition, I expect HLE-related parenting to be influenced by the emotional environment, with positive expressiveness supporting the HLE and negative expressiveness hindering it. Finally, I expect the HLE-related parenting in which both mothers and fathers engage to promote children's early literacy skills. I will also explore the extent to which this family process model is unique contributions of fathers.

Method

Participants

Families were recruited through their child's attendance at one of three preschools, each of which was associated with a large, Midwestern university. In the falls of 2009, 2010, and 2011, all families with children attending three preschools were invited to participate in an ongoing, longitudinal study of child development. Seven hundred and eighty-eight (788) families and their preschool-aged child were initially enrolled and 74% of mothers and 49% of fathers

returned the questionnaires. Both mothers and fathers completed these questionnaires individually and turned them in separately. Only intact, two-parent families were included in the current study, which yielded a final sample size of 539. Families did not differ in terms of parent education for those which were intact (Mothers: $M = 6.59$, $SD = 1.96$; Fathers: $M = 6.73$, $SD = 2.48$) and those which were not (Mothers: $M = 5.16$, $SD = 1.89$; Fathers: $M = 5.02$, $SD = 2.21$); $t(590) = -6.05$, $p = .07$; $t(376) = -3.90$, $p = .12$). Intact and non-intact families also did not differ by child gender, $\chi^2(1, n = 600) = 1.57$, $p = .35$) or by child race $\chi^2(1, n = 615) = 3.06$, $p = .06$).

Children's ages ranged from 31 to 75 months, with an average age of 49 months ($SD = 6.82$) and 52% were female. The majority of children were White (81%), however 7% were Asian or Pacific Islander, 3% were Hispanic or Latino, 2% were Black or African American, and 6% were multiracial. English was the primary language spoken in the majority of homes (94%). In addition, parents were generally well educated with 59% of mothers and 53% of fathers having at least a bachelor's degree or higher. The demographics for children's race, ethnicity, and primary language are reflective of U.S. census data for the counties in which the data is collected (U.S. Census Bureau, 2011). Demographic information is presented in Table 2.1

Measures

Marital relationship. For the purposes of this study, marital functioning was measured using an assessment of marital satisfaction and marital conflict. Mother and father report on marital satisfaction and marital conflict were used to construct a latent factor of overall marital relationship functioning. The use of a latent factor with several indicators as an outcome enhances the reliability with which a construct is measured (von Oertzen, Hertzog, Lindenberger, & Ghisletta, 2010). All four indicators had strong loadings (mothers' satisfaction: $.42$, $p < .001$;

TABLE 2.1
Descriptive information of study participants

Child Demographics

Age in Months (*n* = 536)

Min	30.94
Max	74.97
Mean	48.76
SD	7.02

Gender (*n* = 515)

Female	268 (52.0%)
Male	247 (48.0%)

Race (*n* = 527)

Black or African American	11 (2.1%)
White (not Hispanic/not Latino)	426 (80.8%)
Hispanic or Latino	13 (2.5%)
Asian	39 (7.4%)
Multi-racial	30 (5.7%)
Other	8 (1.5%)

Language (*n* = 540)

English	495 (91.7%)
Korean	6 (1.1%)
Chinese	5 (0.9%)
Spanish	6 (1.1%)
Other	28 (5.2%)

Parent Education

	Maternal Education (<i>n</i> = 479)	Paternal Education (<i>n</i> = 337)
Highest Degree Obtained		
Some high school	6 (1.2%)	5 (1.5%)
High school diploma or equivalent	31 (6.1%)	25 (7.3%)
Some college but no degree	173 (33.9%)	125 (36.6%)
College degree or higher	299 (58.6%)	182 (53.3%)

fathers' satisfaction: .53, $p < .001$; mothers' conflict: .75, $p < .001$; fathers' conflict: .85, $p < .001$).

Marital satisfaction was measured using the Kansas Marital Satisfaction Scale (KMS; Schumm et al., 1986), a short, three-item measure of marital satisfaction, assessing individuals' satisfaction with their spouse, marriage, and marital relationship. Participants are asked to rate their satisfaction with these aspects of their relationship on a 7-point, Likert-type scale ranging from "Extremely Dissatisfied" to "Extremely Satisfied". Total scores for individuals with no missing data can range from three to 21 with higher scores indicating higher relationship satisfaction. The KMS demonstrates good construct validity (Schumm, Crock, Likani, Akagi, & Bosch, 2008; Schumm et al., 1986), internal consistency (Grover, Paf-Bergen, Russell, & Schumm, 1984), criterion validity (Schumm et al., 1986), and test-retest reliability (Mitchel, Newel, & Schumm, 1983). This measure corresponds well with lengthier assessments of couple functioning (Crane, Middleton, & Bean, 2000; Schumm et al. 1986) and effectively distinguishes between high and low to non-distressed couples (Crane et al., 2000; White, Stahlmann, & Furrow, 1994). In addition, this measure was recently identified as the best available brief measure of marital satisfaction (Graham, Diebels, & Barnow, 2011). Cronbach's alpha reliability in the current sample was .98 for mothers and .98 for fathers.

Marital conflict was assessed using mother and father report on levels of overt marital hostility on the O'Leary-Porter Scale (Porter & O'Leary, 1980). This 10-item assessment measures marital conflict that occurs in front of the child in the study and includes questions such as, "Husbands and wives often disagree on the subject of discipline. How often do you and your spouse argue over disciplinary problems in this child's presence?," and "In every normal marriage there are arguments. How often would you say arguments between you and your

spouse take place in front of this child?” Participants are asked to respond to these questions on a 5-point, Likert-type scale ranging from “Never” to “Very Often”. Total scores for individuals with no missing data can range from 10 to 50. Traditionally higher scores on this measure indicate higher levels of conflict. However, because this measure is being used to create a factor along with a measure that is in the other direction, the variables were reverse coded so that higher scores indicate better functioning (i.e., lower levels of conflict). This allows results to be interpreted more readily as higher scores for the marital relationship factor will indicate overall higher functioning (higher satisfaction and lower conflict). The OPS demonstrates acceptable test-retest reliability, internal consistency, concurrent validity with other assessments of marital functioning (Porter & O’Leary, 1980). Cronbach’s alpha reliability in the current sample was .71 for mothers and .75 for fathers. This level of reliability is similar to that noted in other studies utilizing this measure of marital conflict (Obradovic, Bush, & Boyce, 2011) and constitutes an acceptable level of reliability (George & Mallery, 2003; Nunnally & Bernstein, 1994).

Family emotional expressiveness. Family emotional expressiveness for both mothers and fathers was measured using the Family Expressiveness Questionnaire – Short Form (FEQ; Halberstadt, 1996). The FEQ is a 24-item questionnaire that assesses the frequency of emotional expression in the family on a scale ranging from 1 to 9. The FEQ contains two subscales consisting of positive family expressiveness and negative family expressiveness. Examples of positive family expressiveness include “praising someone for good work,” and “expressing excitement over one’s future plans,” whereas examples of negative family expressiveness include “showing contempt for another’s actions,” and “expressing dissatisfaction with someone else’s behavior.” The FEQ has good discriminant validity and has a ten-day test-retest reliability ranging from .89 to .92 (Halberstadt, 1996). Scores for family levels of emotional expressiveness

were generated by creating composites of mother and father reports of negative and positive emotional expressiveness. Cronbach's alpha reliability of the positive and negative expressiveness subscales in the current sample were .89 and .87 respectively for both mothers and fathers. Mother and father report were used to create separate factors for positive and negative expressiveness. The two indicators for the positive expressivity factor had strong loadings (mothers: .66, $p < .001$; fathers: .51, $p < .001$), as did the two indicators for negative expressiveness (mothers: .50, $p < .001$; fathers: .73, $p < .001$).

Home learning environment. The HLE was assessed using both mother and father responses on a subscale of the Parenting Questionnaire (Morrison & Cooney, 2002), which is a self-report measure of parenting behaviors. The HLE subscale includes seven items such as, "How frequently do you read to your child," and "How frequently do you teach your child letter sounds". Parents were asked to rate, on a five-point Likert-type scale, how likely they were to engage in these activities at home. See Froyen and colleagues (2013) for the full measure. Mothers and fathers reported on their own home learning activities, and these scores were used to generate a home learning environment composite score. Higher scores indicated that parents provided more learning activities within their homes. Cronbach's alpha reliability of the HLE subscale in the current sample was .84 for mothers and .83 for fathers. Again, mother and father report were used to create a factor for HLE-related parenting. Both indicators had strong loadings on the factor (mothers: .70, $p < .001$; fathers: .57, $p < .001$).

Early literacy skills. Three aspects of early literacy skills were measured, including letter knowledge, decoding, and phonological awareness. Letter knowledge was assessed via a letter identification task in which children are shown shuffled uppercase and lowercase alphabet letters in one of eight randomly ordered forms. The form given to each child was randomly

assigned. In this task, children are asked to identify the name of the letter shown. In fall of 2009 and 2010 children were asked to name all 52 upper and lowercase letters whereas an eight-item subset of letters was used in the fall of 2011. This subset has been used in previous research and consisted of letters that span the range of the construct (Bowles, Pentimonti, Gerde, & Montroy, 2014; Phillips, Piasta, Anthony, Lonigan, & Francis, 2012). In order to examine letter knowledge on the same scale regardless of the assessment format, Rasch scores were constructed based on previous research (Bowles et al., 2014).

Decoding was measured using the Letter-Word Identification subtest of the Woodcock-Johnson III Tests of Achievement (WJ-III; Woodcock, McGrew, & Mather, 2001). This assessment evaluates children's early knowledge of letters, words, and decoding skills. Reliability for this assessment for children ages three to eight ranges from .96 to .99 (Woodcock, McGrew, Schrank, & Mather, 2001, 2007). Finally, phonological awareness was assessed using the phonological awareness subscale of the Test of Preschool Early Literacy (TOPEL; Lonigan, Wagner, Torgesen, & Rashotte, 2007), testing children's blending and elision abilities. Internal consistency for this assessment ranges from 0.86 to 0.88 for children ages three to five while the test-retest reliability is .83. These three assessments measure distinct, but related, aspects of children's emerging literacy skills and were utilized to construct a latent literacy variable. All three indicators had strong loadings on the early literacy factor (letter knowledge: .91, $p < .001$; decoding: .88, $p < .001$; phonological awareness: .37, $p < .001$).

Analysis Plan

Structural equation modeling (SEM) implemented in Mplus (Muthen & Muthen, 2010) was utilized to construct a family process model of the influence of the marital relationship and family emotional environment on HLE-parenting behaviors and children's early literacy skills

(Figure 1). Model fit was assessed utilizing the chi-square test of absolute fit, the comparative fit index (CFI), and the root mean square error of approximation (RMSEA) following guidelines proposed by Browne and Cudeck (1993) and Hu and Bentler (1998).

Next, I next examined the indirect effect of these family factors on children's early literacy skills by using bootstrapping to estimate the indirect effect and 95% confidence intervals for the indirect effect (Bollen & Stine, 1990). Bootstrapping is a resampling method in which the indirect effect is estimated by repeatedly sampling from the data set. In repeating this resampling of the data thousands of times, 10,000 in this case, I am able to approximate the sampling distribution and use it to construct confidence intervals for the indirect effect. Research indicates that the bootstrapping approach to indirect effects is significantly better than other approaches to mediation, such as the Sobel test (Mackinnon et al., 2002, Mackinnon et al., 2004). This is particularly true with more complex mediation models with multiple mediators (Preacher & Hayes, 2008). If the bootstrapped confidence interval for the indirect effect does not contain zero then I will conclude that that the indirect effect is significant.

Finally, a series of chi-square difference tests were used to determine whether there are differences for mothers and fathers in these processes and which factors are driving these differences. I first constructed a model where all father variables were allowed to vary freely with other father variables. The original model would be nested within this model. If the original model fits significantly worse than this second model, it can be concluded that there are global differences for mothers and fathers in how these family processes influence children's early literacy skills. Finally, one at a time I constrained the paths from father variables to zero to see at what point fit worsened significantly. This will allow me to explore the specific family factors to which fathers may contribute uniquely.

Missingness in the data was accounted for utilizing the likelihood-based approach provided by Mplus. In the first year of study the measure of marital conflict was not included, which represents planned missingness on this measure for 35% of families. In general data that are missing due to planned missingness are considered to be missing at random and can be included in analyses without biasing results (Enders, 2010). Enders (2010) provides an overview of missing data mechanisms. In addition, father response rate was lower than that of mothers leading to missing data rates above 20% for fathers on satisfaction, positive and negative expressiveness, and the HLE. Independent samples t-tests indicated that there were no significant differences between the literacy scores of children whose fathers returned the questionnaires (Letters: $M = .25$, $SD = .96$; Decoding: $M=332.68$, $SD = 27.14$; Phonological Awareness: $M =12.39$, $SD = 6.06$) and fathers who did not (Letters: $M= .11$, $SD= .97$, $t(485) = -1.46$; $p = .89$; Decoding: $M =326.48$, $SD = 26.47$, $t(435) = -2.22$; $p = .91$; Phonological Awareness: $M =13.46$, $SD = 6.35$, $t(357) = 1.50$; $p = .75$). Two child variables had rates of missingness above 20% (Letter knowledge and the TOPEL) due to testing time constraints. These data were considered to be missing completely at random (MCAR). Other variables had missing data rates under 11%.

I did initially control for child gender, race, and parent education, however these controls were not significantly related to any of the study variables (i.e., $p > .05$), their inclusion did not alter results, and including them in the model did not improve model fit. For the purposes of parsimony these controls were removed from the final models.

Results

Means, standard deviations, and correlations among the study variables are presented in Table 2.2.

TABLE 2.2

Means, Standard Deviations, and Intercorrelations of Study Variables (N = 539)

Variables	Min	Max	Mean	SD	1	2	3	4	5	6	7	8	9	10
Mother Satisfaction	3.00	21.00	17.82	3.97	-									
Father Satisfaction	3.00	21.00	17.97	4.17	.32**	-								
Mother Conflict	5.00	50.00	42.68	4.74	.29**	.30**	-							
Father Conflict	24.00	50.00	43.06	4.71	.28**	.44**	.60**	-						
Mother Positive	3.00	9.00	7.60	0.96	.23**	.15*	.25**	.18*	-					
Father Positive	1.17	9.00	7.05	1.14	.15*	.22**	.06	.06	.34**	-				
Mother Negative	1.08	7.25	3.54	1.09	-.14**	-.12*	-.36**	-.19*	-.12*	-.06	-			
Father Negative	1.00	7.42	3.49	1.14	-.14**	-.22**	-.24**	-.39**	-.07	-.03	.34**	-		
Mother HLE	1.00	5.00	3.38	.84	.06	.17**	.22**	.10	.21**	.10	-.13**	-.15**	-	
Father HLE	1.00	5.00	3.18	.83	-.03	.11	.07	.13	.12	.22**	-.11	-.25**	.41**	-

Note. * $p < .05$. ** $p < .01$

The initial model, depicted in Figure 2.1, provided an adequate fit for the data ($\chi^2 = 111.9$, $df = 55$, $p = .00$; CFI = .94; TLI = .92; RMSEA = 0.04). The unstandardized and standardized loadings and regression coefficients for the model are presented in Table 2.3. In this model, the couple relationship significantly predicted both positive ($\beta = .44$, $p < .001$) and negative ($\beta = -.61$, $p < .001$) family emotional expressiveness.

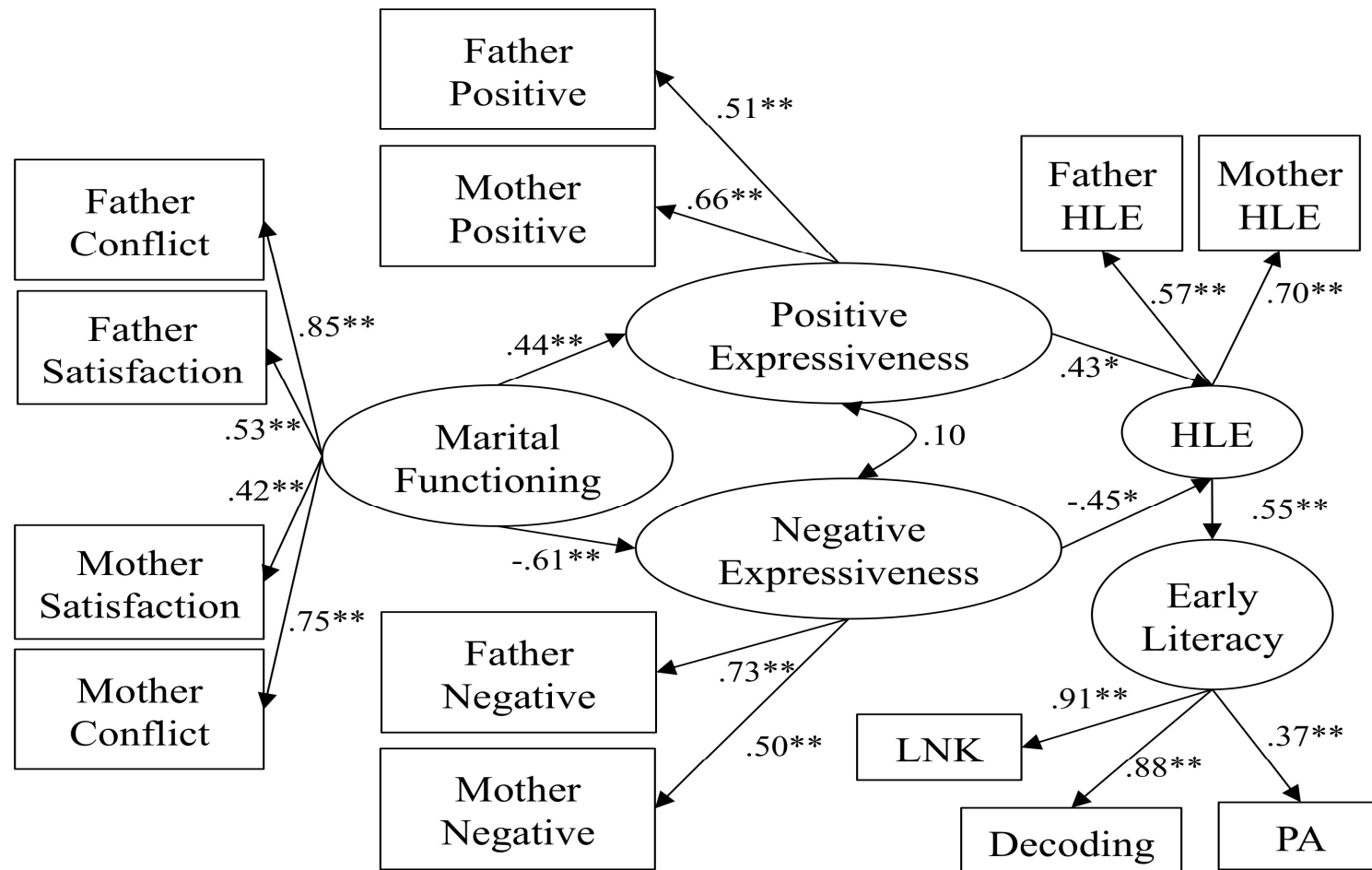


FIGURE 2.1. Simplified Path Diagram of Marital Functioning, Family Expressiveness, the HLE, and Children's Early

Literacy Skills. Note. Coefficients are standardized estimates; LNK: Letter Knowledge; PA: Phonological Awareness; * $p < .01$, ** p

$< .001$; $\chi^2 = 111.9$, $df = 55$, $p = .00$; CFI = .94; TLI = .92; RMSEA = 0.04

TABLE 2.3. *Unstandardized, Standardized, Significance Levels for the Model in Figure 2.1 (N = 539)*

Pathways	Unstandardized	SE	Standardized	<i>p</i>
Marital Functioning → Positive Expressivity	.07	.01	.44	< .001
Marital Functioning → Negative Expressivity	-.08	.02	-.61	< .001
Positive Expressivity → HLE	.32	.12	.43	.01
Negative Expressivity → HLE	-.39	.14	-.45	.01
HLE → Early Literacy Skills	1.01	.24	.55	< .001

Note. $X^2(55) = 111.9$. CFI = 0.94. TLI = 0.92. RMSEA = 0.04

This suggests that couples with higher marital functioning (less conflict and more satisfaction) have families characterized by more positive and less negative expressiveness. Both positive and negative family emotional expressiveness predicted the HLE, ($\beta = .43$, $p < .01$ and $\beta = -.45$, $p < .01$ respectively). This indicates that increases in positive family expressiveness were related to increases in HLE- related parenting behaviors, while increases in negative family emotional expressiveness are related to decreases in HLE-related parenting. Finally, family HLE predicted children's early literacy skills ($\beta = .55$, $p < .001$).

Indirect Effects

I next examined the indirect effect of these family factors on children's early literacy skills by using bootstrapping to estimate the indirect effect and constructing 95% confidence intervals. The bootstrapped point estimates and confidence intervals are presented in Table 2.4.

TABLE 2.4. *Mediation of the Effect of Marital Functioning on Children's Early Literacy* (N = 539)

	Point Estimate	SE	Bootstrapping Percentile 95% CI	
			Lower	Upper
Indirect Effects: Marital → HLE				
Marital → Positive → HLE	.054	.037	.012	.165
Marital → Negative → HLE	.079	.051	.023	.243
Total	.133	.075	.043	.355
Indirect Effects: Expressiveness → Literacy				
HLE → Positive → Literacy	.352	.499	.100	1.607
HLE → Negative → Literacy	-.256	.322	-1.099	-.068
Indirect Effects: Marital → Literacy				
Marital → Positive → Literacy	.055	.105	.010	.366
Marital → Negative → Literacy	.080	.122	.020	.412
Total	.018	.185	-.275	.218

Note. Based on 10,000 bootstrap samples.

Marital functioning had a significant total indirect effect on the HLE (0.133; 95% CI [0.043, 0.355]). The significant specific indirect effects on the HLE were through both positive (0.054; 95% CI [0.012, 0.165]), and negative expressiveness (0.079; 95% CI [0.023, 0.243]). In addition there was a significant, and positive, indirect effect of positive expressiveness on literacy (0.352; 95% CI [0.100, 1.607]), and a significant, and negative, effect of negative expressiveness on literacy (-0.256; 95% CI [-1.099, -0.068]), both through the HLE.

Finally, the total indirect effect of marital functioning on children's early literacy was estimated to be 0.018 (95% CI [-0.275, 0.218]). This confidence interval contains zero, and thus was not significant. However, two of the specific indirect effects of

marital functioning on children's early literacy were significantly different than zero. These results suggest that marital functioning has an indirect effect on children's literacy skills through two paths captured in this model. The first is through positive expressiveness and the HLE (0.055; 95% CI [0.010, 0.366]), while the second is through negative expressiveness and the HLE (0.080; 95% CI [0.020, 0.412]).

Taken together, these findings demonstrate that marital functioning indirectly influences children's early literacy skills through the family emotional environment and the HLE. In general, parents who report better marital relations have families that display more positive emotions and fewer negative emotions, which is related to an increase of HLE-related parenting, which is then predictive of greater early literacy skills. Conversely, families with poor functioning marriages tend to express more negative emotions and fewer positive emotions, which is related to a decrease in HLE-related parenting, and a subsequent decrease in observed early literacy skills for children.

Unique Contributions of Fathers

The next sets of analyses examined whether fathers contribute to these family factors in a unique way. First, I allowed all paths from the father variables to vary freely. The initial model is nested within this second model. This model failed to converge. There was a negative variance in the error terms for mothers HLE and mothers' report of family negative emotional expressiveness indicating that the model was inappropriate for the data. I first constrained the relation between fathers' HLE and the literacy factor to zero. This model also failed to converge and while the negative variance for mothers' HLE went away, the other negative variance

was still present. Next, I constrained the path from fathers' report of negative family emotional expressiveness to the literacy factor. This model converged and had no negative error variances. The absence of these paths suggests that a model where father's HLE and negative expressiveness are not directly predictive of children's early literacy is more appropriate for the data.

This model fit the data well ($\chi^2 = 84.2$, $df = 44$, $p = .00$; CFI = .96; TLI = .93; RMSEA = 0.04). The unstandardized and standardized loadings and regression coefficients for the model are presented in Table 2.5.

TABLE 2.5. *Unstandardized, Standardized, Significance Levels for Model Examining Unique Contributions of Fathers (N = 539)*

Pathways	Unstandardized	SE	Standardized	<i>p</i>
Father Satisfaction → Father Positive	.06	.02	.21	.02
Father Satisfaction → Father Negative	.00	.02	.00	.99
Father Conflict → Father Positive	-.02	.03	-.17	.44
Father Conflict → Father Negative	-.04	.04	-.17	.32
Father Positive → HLE	.13	.04	.18	< .001
Father Negative Exp → HLE	-.13	.04	-.19	< .001
Mother Marital Functioning → Mother Positive	.07	.02	.33	< .001
Mother Marital Functioning → Mother Negative	-.09	.02	-.54	< .001
Mother Positive → HLE	.07	.10	.20	.24
Mother Negative → HLE	-.09	.08	-.19	.15

Note. $X^2(44) = 84.2$ CFI = 0.96. TLI = 0.93. RMSEA = 0.04

The constrained (original) model fit significantly worse than this second model ($\Delta\chi^2 = 27.7$, $\Delta df = 11$, $p = .001$), indicating that fathers influence these family processes in unique ways, above and beyond the contribution of mothers. Next, I constrained the paths from father variables to zero one at a time. For each subsequent constrained model, the fit was significantly worse. These findings suggest that a model where fathers' reports of satisfaction, conflict, positive expressiveness, and negative expressiveness are allowed to freely predict all other father variables but only satisfaction, conflict and positive expressiveness freely predict children's early literacy skills is the most appropriate for the data. In this model, if the paths between father variables were significant this represented an effect of fathers above and beyond that of mothers. Additionally, if the paths between the latent variables were significant this represented an effect of mothers.

These results indicate that fathers' satisfaction uniquely predicted their own report of positive expressiveness ($\beta = .212$, $p < .02$), but neither fathers' satisfaction nor conflict predicted their own report of negative expressiveness ($\beta = .00$, $p < .99$ and $\beta = -0.174$, $p < .32$ respectively) above and beyond the contribution of mothers. When fathers' marital functioning was allowed to uniquely predict their own positive and negative expressiveness, mothers' marital functioning continued to predict mothers' positive and negative expressiveness ($\beta = .327$, $p < .001$ and $\beta = -0.539$, $p < .001$, respectively). Taken together, this suggests that the way in which marital satisfaction is related to family expressiveness is unique for fathers, with fathers' marital satisfaction predicting fathers' positive expressiveness above and beyond the contribution of mothers.

Patterns of effects for the influence of positive and negative family expressiveness on the HLE are also unique for fathers ($\beta = .181$, $p < .001$ and $\beta = -0.186$, $p < .001$ respectively). In

addition, when accounting for the uniqueness of fathers, mothers' HLE is not predicted by mothers' positive ($\beta = .198, p < .24$) or negative ($\beta = -0.193, p < .15$) expressiveness. This suggests that the relation between the family emotional environment and the HLE may be attributable to the unique contributions of fathers.

Discussion

Research overwhelmingly indicates that parents' active efforts to provide their children with academic instruction are directly related to the early literacy skills children display as they transition to formal schooling (Bjorklund, Hubertz, & Reubens, 2004; Storch & Whitehurst, 2001). The skills contained within the construct of early literacy have been identified as some of the strongest predictors of future success in both reading specifically and academics generally (Foulin, 2005; Storch & Whitehurst, 2002; Wagner, Torgesen, & Rashotte, 1994). However, our understanding of how the broader family system, namely marital functioning and the emotional environment, influences both the HLE and children's subsequent skills is rooted in mothers' perspectives (Froyen et al., 2013). The current study identifies the marital relationship and family emotional expressiveness as important contextual factors that influence children's early literacy skills. Additionally, including fathers allowed for the conceptualization of this study from a family process perspective and indeed the results supported considering mothers and fathers contemporaneously, as opposed to separately or mothers alone. Finally, the analytic methods employed in the study allow for greater accuracy and confidence when interpreting results than previous research.

Marital Functioning Influences Early Literacy

Previous research on the influence of marital and family functioning on child outcomes indicates that parenting is often the primary way that children are influenced by these family

system factors (Belsky, 1984; Cummings et al., 2000; Erel & Burman; 1995). However, for young children, much of this work focuses on children's social and emotional function, neglecting children's early academic skills (Belsky & Fearon; 2004; Froyen et al., 2013). In addition, this body of research has largely failed to examine the influence of these broader family factors on the specific aspects of parenting that are typically related to children's early academics, namely the HLE (Froyen et al., 2013). While some previous research does indicate that marital relations and family functioning are associated both with HLE-related parenting and children's early literacy outcomes, the current study approaches these relationships from a family systems perspective that considers the role of both mothers and fathers.

The current study shows that the quality of the marital relationship is important for children's early literacy skills because of its influence on the emotional atmosphere of the family, which then influences the HLE-related parenting behaviors that support early literacy skills. High marital quality (higher satisfaction and lower conflict) is associated with a family emotional environment characterized by more positive and less negative emotional expressiveness. This is in keeping with the extant literature suggesting that the marital relationship sets the emotional tone of the family (Davies et al., 2009). This study also demonstrates that the emotional environment is related to the HLE such that more positive and less negative expressiveness is associated with more frequent engagement in the HLE-related parenting behaviors that promote children's early literacy skills. This finding is also in line with previous research, however the only other study to examine these marital and family factors in relation to the HLE did not include fathers (Froyen et al., 2013).

Interestingly, previous research that only included mothers suggested that negative expressiveness was not related to the HLE and was not an indirect pathway of influence of

marital relationship quality on children's early literacy outcomes (Froyen et al., 2013). However, in the current study that included fathers, family negative emotional expressiveness did predict the HLE. This may be because there are some family processes that are different for mothers and fathers. Findings in the literature are mixed in regards to whether marital relations differentially influence other family systems for mothers and fathers with some studies noting a stronger negative influence of the marital relationship on father's parenting (see Coiro & Emery, 1998 for review). The current study adds to this literature by identifying processes by which marital and family emotional factors influence parenting that are unique for fathers. These potential differences are discussed more fully below.

Finally the results for the present study show that the family emotional environment and HLE-related parenting mediate the relation between marital functioning and children's early literacy. This finding reflects previous research indicating that parenting is one of the primary ways that the influence of the marital relationship is transmitted to children (Belsky, 1984; Cummings et al., 2000; Erel & Burman; 1995). The current study adds to this body of research by highlighting the role of parenting behaviors that are specifically aimed at enhancing children's academic outcomes in mediating the influence of marital functioning and young children's literacy. This work highlights the importance of taking a whole family perspective when examining factors that contribute to children's early literacy outcomes.

While the size of the indirect effects are small, it is important to consider three essential factors when interpreting these results. First, and most importantly, research on children's early literacy shows that gaps in these skills widen with age (Foster & Miller, 2007; Torgesen, Wagner & Rashotte, 1994). Early intervention studies suggest that the gains made in literacy skills in early childhood hold as children age and may prevent long-term literacy challenges (Cartledge,

Yurick, Singh, Keyes, & Kourea, 2011; Berrninger, Abbott, Vermeulen, Ogier, Brooksher, & Zook, 2002; Vellutino, Scanlon, & Jaccard, 2003; Vellutino, Scanlon, Sipay, Small, Pratt, & Chen, 1996). The findings in the current study are significant because they identify specific family processes that are either supportive or detrimental to children's early literacy skills. Any protective factor for these skills in the preschool period has the potential to strongly influence later literacy skills that are crucial to academic and economic success (Storch & Whitehurst, 2001; 2002). Second, considering this study was conducted within a community sample with relatively low levels of risk, the findings show that even small variation in marital quality and the emotional environment are linked to child outcomes. And third, this study confirms the influence of distal family processes on the more direct proximal process of the HLE, and ultimately children's skills. It is expected that distal processes will be less strongly associated with child outcomes than proximal processes, yet their consideration is still vital for a complete picture of how children's home environments influence their early literacy skills (Bronfenbrenner & Morris, 2006).

The Importance of Fathers

The necessity of including fathers in this type of research has been highlighted repeatedly in the literature (Lamb, 2010; Marsiglio, Amato, Day, & Lamb, 2000), yet this call has gone largely unanswered when it comes to family process factors that influence children's early literacy skills. While mothers continue to be children's primary caregivers, the roles of fathers have been changing drastically in the past 50 years (Cabrera et al., 2000). Fathers are increasingly involved in parenting (Yeung, Sandberg, Davis-Kean, & Hofferth, 2001) and the results of this study indicate that not including fathers in family research and family interventions has several significant consequences. Without including fathers in research, our understanding of

how families influence child development is incomplete. Further, the results of this study show that fathers are an important consideration when examining how best to support families of young children in the face of marital difficulties.

The extant literature suggests that fathers contribute uniquely to child outcomes (Parke, 2002; Stolz, Barber, & Olsen, 2005) and this study adds to this body of research by identifying specific family factors that are unique for fathers. In this study, I found that fathers' own perceptions of their marital relationship uniquely contributed to the emotional environment of the family, which also uniquely contributed to parent-child interactions within the context of the HLE, above and beyond that of mothers. This is consistent with research that indicates that the influence of marital functioning on parenting and the family emotional environment is different for mothers and fathers (Coiro & Emery, 1998; Jouriles & Farris, 1992). These findings suggest that, while the marital relationship is important for the family emotional environment for both mothers and fathers, the process through which this occurs is unique for fathers. This indicates that theory and interventions based on a body of research almost entirely driven by data for mothers may not actually be relevant for fathers.

Further, the results of the study indicate that fathers are particularly important for the relations between the family emotional environment and HLE-related parenting that have been noted in previous work (Froyen et al., 2013). This is in line with research suggesting that fathers' parenting is more susceptible to influence from other family systems (Nelson et al., 2009). Specifically, this study suggests that fathers' emotional expressiveness, both positive and negative, is related to the HLE over and above that of mothers. Further, when the unique effect of fathers is taken into consideration, mothers' report of the emotional environment is not related to the HLE. While previous research suggests that mothers' reports of positive family

expressiveness predict their own HLE-related parenting behaviors (Froyen et al. 2013), fathers were not included in that study. Because the family emotional measure included in these studies is designed to capture overall family emotions it is possible that the mother's report of positive expressiveness in Froyen and colleagues (2013) reflects some unmeasured effect of fathers. Indeed, research and theory suggests that families have general styles of emotional expression and that parents generally agree on the expression of emotion that is typical of their families (Halberstadt, 1996). By including fathers in the current study, I am able to assess the family emotional environment with greater accuracy by isolating the effect that is unique to fathers above and beyond the effect of mothers and the shared expressiveness style of the family. In doing so, I found that it is fathers' perspective on family emotions that is related to HLE- related parenting. This is consistent with previous research suggesting that fathers are more likely to allow affect from one family context to "spillover" into other contexts (Jouriles & Farris, 1992). This further highlights the importance of including fathers in research that considers the influence of family factors on child development.

Limitations

Several limitations should be taken into consideration when interpreting the results of the current study. First, the study sample was relatively homogenous. Although the demographics of the sample were consistent with the census data for the area, parents in the sample were largely well-educated and demonstrated relatively low levels of marital conflict and relatively high marital satisfaction. It is possible the relations among the study variables would have been different if the current sample had contained more of the risk factors that are often linked to children's early outcomes. For example, witnessing highly destructive marital conflict puts children at greater risk for internalizing and externalizing disorders (Cummings & Davies, 1994;

Grych & Fincham, 1993). In addition, the connection between marital dysfunction and disruption in parenting is stronger for families living in poverty (Buehler & Gerard, 2002). Further, socioeconomic status is one of the most consistent risk factors that negatively impacts the HLE and children's outcomes (Jeynes, 2003; Roopnarine, Fouts, Lamb, & Lewis-Elligan, 2005). In light of this, it is possible that results of the current study may be even stronger in populations with more risk factors.

While the current study utilized multiple informants (mother and father) to construct factors for all family level variables, reporter bias and social desirability are still potentially problematic. It is possible that parents' reports of marital functioning, family emotions, and the HLE are biased (Bradley & Caldwell, 1984; Cummings, Goeke-Morey, & Papp, 2001). Future work would benefit from the use of observational methodology to assess family level variables, which may provide a more accurate picture of the family context in which children are embedded (Cummings et al., 2001; Grych, 2001). In addition, the variables in current study were collected concurrently and the results are correlational in nature, making it difficult to draw definitive conclusions on causality (Cummings et al., 2001; Grych, 2001). As such, results should be interpreted with caution. In the future it will be important to examine these important family processes from a longitudinal and/or causally oriented perspective.

Practical Implications

The results of the current study emphasize the importance of considering the broader family influence on children's early literacy skills and point to potential considerations for practitioners across multiple settings. Early literacy skills are incredibly important for future academic success and there is a significant concern that large portions of children entering into formal schooling are doing so without the skills necessary to succeed (Foster & Miller, 2007;

Storch & Whitehurst, 2001; Torgesen, Wagner & Rashotte, 1994). Family-based interventions targeting children's early literacy skills typically focus on mothers (Saracho, 2008), but there has been a call in the literature that these family-based early literacy interventions should also include fathers (Cabrera et al., 2000). Results of the current study confirm that including fathers in early literacy interventions may be an important factor in helping the family support children's early literacy skills.

Research shows that taking a whole family perspective is important when working with couples with young children (Faircloth, Schermerhorn, Mitchell, Cummings, & Cummings, 2011). When the findings of the current study are considered within the context of the vast literature regarding the influence of marital and family functioning on children's social and emotional development is considered (Cummings & Davies, 1994), developing more comprehensive interventions for children and families that target both whole family and child wellbeing is crucial. Further, this study suggests that targeting certain aspects of broader family functioning, such as the couple relationship and the family emotional environment, in addition to the more traditionally-conceptualized HLE, may potentially be beneficial. Specifically, findings suggest that children of parents experiencing marital dysfunction may benefit from improved couple functioning.

Psychoeducation-based marital conflict interventions in which parents are made aware of the effect of marital conflict on child social and emotional development have been successful in improving marital satisfaction, constructive conflict tactics, and child adjustment (Faircloth et al., 2011). The results of the current study suggest that couples and young children may also benefit from psychoeducation regarding the influence of these marital, family, and parenting factors for children's academic success. Further, the current study indicates that marital and

family factors differ for mothers and fathers and that it will be important to develop interventions that target these marital and family factors and parent-child interactions in ways that are relevant for both mothers and fathers. For example, mothers of young children may benefit from increased awareness of the way that dysfunction in their marital relationship influences how they perceive positive and negative emotional expressivity in their family. In contrast, for fathers it may be helpful to highlight the unique importance of their marital satisfaction for positive expressiveness in the family. Further, fathers may also benefit from learning strategies to prevent their positive and negative emotions from impacting their parenting, particularly where the HLE is concerned. While the current study is an excellent starting point, additional research is needed to fully determine specific marital and family level interventions that may be beneficial to children's early literacy skills.

Conclusion

Traditional studies examining home, parent, and family influences on children's early literacy have focused almost exclusively on mother report and the immediate home learning environment. This study demonstrates the importance of taking a whole family perspective when examining the influence of the family context on children's early literacy skills. This includes not only considering the role of the marital and emotional environments, but also the perspective of both mothers and fathers. Results suggest that the marital relationship is important for children's early literacy skills through the influence of both positive and negative family expressiveness on the HLE. In addition, we found that some of these family processes are different for mothers and fathers. Notably, the influence of family expressiveness on HLE-related parenting seems to be primarily attributable to the influence of fathers. In sum, these results suggest that the marital and emotional environment of the family as a whole has

important implications for the construction of the HLE that parents provide to children, as well as children's early literacy skills.

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CHAPTER 3: STUDY TWO

Mothers' and Fathers' Depression and Children's Early Literacy Skills

ABSTRACT

The current study examines the influence of mothers' and fathers' depressive symptoms on preschoolers' early literacy skills among 630 families. I utilize the Actor-Partner Interdependence Model within a structural equation modeling framework to examine the relation between parents' depressive symptoms and their own and their partner's home learning related parenting behaviors. Further, I examine home learning-related parenting as a mediator of the relation between parent depressive symptoms and children's early literacy skills. Notably, I find an actor effect of fathers' depressive symptoms, but not mothers', on home learning-related parenting such that fathers who report more depressive symptoms engage in fewer home learning activities. I also identify a partner effect of fathers' depressive symptoms on home learning-related parenting such that increases in fathers' depressive symptoms predict decreases in mothers' home learning activities. Finally, fathers' depressive symptoms negatively relate to children's early literacy skills by influencing mothers' home learning-related parenting. Findings from the present study highlight the importance of considering the potential negative effects of parent depressive symptoms on children's early literacy skills. Further, these findings highlight the importance of including both mothers and fathers in future research, policy, and interventions concerned with the influence of parents' depressive symptoms on children's development.

Introduction

Parent depression is a growing concern, especially among parents of young children when prevalence rates are higher for both mothers (Davé, Petersen, Sherr, & Nazareth, 2010; Hasin, Goodwin, Stinson, & Grant, 2005) and fathers (Paulson & Bazemore, 2010; Paulson, Dauber, & Leiferman, 2006; Perren, von Wyl, Burgin, Simoni, & von Klitzing, 2005; Pinheiro, Magalhaes, Horta, Pinheiro, da Silva, & Pinto, 2006) relative to the adult population at large (Hasin et al., 2005). This elevation in prevalence occurs during the period of development when children are most susceptible to the negative effects of parent depressive symptoms (Bagner, Pettit, Lewinsohn, & Seeley, 2010; Ghodsian, Zajicek, & Wolkind, 1984). In addition, research shows that even sub-clinical levels of parental depressive symptoms have negative implications for child development as well as nearly all levels of the family system. This includes the marital relationship, family functioning (Cummings, Keller & Davies, 2005; Goodman, 2007; Goodman, Rouse, Connell, Broth, Hall & Heyward, 2011; National Research Council and Institute of Medicine, 2009), and, most pertinent to the current study, parenting (Lovejoy, Graczyk, O'Hare, & Neuman; 2000). Taken together, these findings suggest that many young children, including those in a community sample, are embedded in a context of parental depressive symptomatology that is not conducive to optimal development.

Existing theory and research identify parenting as one of the primary pathways through which parent depressive symptoms influence child outcomes (see Lovejoy et al., 2000, Ramchandani & Psychogiou, 2009 and Wilson & Durbin, 2010 for reviews). This large body of literature suggests that depressive symptoms are associated with an increase in negative parenting (e.g. hostility, intrusiveness, and negative interactions) and a decrease in positive parenting (e.g. warmth, sensitivity, and responsiveness; Wilson & Durbin, 2010). Although the

majority of this literature is based on mother report (see Phares, Fields, Kamboukos, & Lopez, 2005), the few studies that include both mother and father reports indicate that the fathers' levels of depressive symptomatology are just as important as mothers' (Cummings et al., 2005; Papp, Cummings, & Goeke-Morey, 2005).

This pervasive negative effect on family functioning in general, and parenting specifically, has significant implications for children who grow up in this environment (Cummings et al., 2005; National Research Council and Institute of Medicine, 2009). It is well established in the literature that parent depression increases children's risk for negative developmental outcomes (Cummings et al., 2005). Specifically, children of depressed parents exhibit increased internalizing and externalizing symptoms (Cummings et al., 2005; Downey & Coyne, 1990). Parent depression is also associated with deficits in social development, with children of depressed parents demonstrating fewer prosocial skills and an increased risk for peer exclusion (Cummings et al., 2005). In addition, children of depressed parents are more likely to experience psychopathology in their lifetime than children of nondepressed parents (Lieb, Isensee, Hofler, Pfister, & Wittchen, 2002).

There is also reason to believe that parental depressive symptoms would be detrimental to children's academic development, particularly their early literacy skills. A number of studies have suggested that mothers' depression is negatively related to children's early literacy outcomes (Baker & Iruka, 2013; Barbarini et al., 2006; Fagan, 2013; Fagan & Lee, 2013; Foster, Lambert, Abbot-Shim, McCarty & Franze, 2005; Greenberg, et al., 1999). Specifically, children of depressed mothers demonstrate less sophisticated early literacy skills than their peers with non-depressed mothers (Barbarini et al., 2006). One caveat to these findings is that many of these studies examine the influence of maternal depressive symptoms as a part of a factor comprised of

several other risk factors (Barbarini et al., 2006; Fagan & Lee, 2013; Foster et al., 2005; Greenberg, et al., 1999). These findings highlight the ways that maternal depressive symptoms contribute to overall levels of risk experienced by children, but limit our ability to interpret the specific role of maternal depressive symptoms in influencing children's early literacy skills. Further, this literature is based nearly entirely on maternal report with only one study examining fathers' depressive symptoms with in a high-risk sample of adolescent parents (Fagan & Lee, 2013). This study also found a negative relation between fathers' depressive symptoms and children's early literacy skills. Cumulatively, these studies indicate that parent depressive symptoms may be an important factor for children's early academic skills.

However, other studies have not supported a direct relationship between mother depressive symptoms and children's early literacy (Cabrera, Scott, Fagan, Steward-Streng, & Chien, 2012; Downer & Pianta, 2006; Son & Morrison, 2010). These findings are surprising given (1) the consistent, negative relationship noted by others and (2) the fact that several of these studies utilized subsamples of the same, large-scale national datasets. One possible reason for these null findings may be that some of these studies simultaneously considered other aspects of parenting (e.g. sensitivity and supportiveness) that are highly related to maternal depression and may have masked effects of maternal depression in these studies (Downer & Pianta, 2006). In addition, these studies exclusively focused on maternal depression. It is possible that an effect of parent depressive symptoms may have emerged had fathers been included in these studies. In sum, the lack of consensus on the specific role of mothers' depressive symptoms on children's early literacy, and the paucity of research on fathers, indicates that the relationship between both parent's depressive symptoms on child early literacy outcomes is not yet well understood.

This gap in the literature is significant given that early literacy comprises the set of skills most consistently linked with future educational and occupational success (Storch & Whitehurst, 2002). Children's early literacy skills shape future reading development (National Early Literacy Panel, 2008; Sénéchal, 2006; Storch & Whitehurst, 2002), and have been related to academic performance in grade school (Denton, West, & Walston, 2003; Duncan et al., 2007) through young adulthood (Baydar, Brooks-Gunn, & Furstenberg, 1993; Cunningham & Stanovich, 1997), and is even predictive of career and economic potential (Storch & Whitehurst, 2001). Trajectories of reading development are surprisingly stable, resistant to change, and are established in the pre-school years (Catts, Bridges, Little, & Tomblin, 2008; Skibbe, Grimm, Stanton-Chapman, Justice, Pence & Bowles, 2008), indicating that children's environment prior to entering formal schooling is important to consider in preparing children for academic learning.

Parents play a crucial role in shaping children's early literacy skills, and the most powerful and frequently examined pathway for this influence is the home learning environment (HLE; Bjorklund, Hubertz, & Reubens, 2004; Bjorklund & Rosenblum, 2001; Cannon & Ginsburg, 2008; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Morrison & Cooney, 2002; Storch & Whitehurst, 2001). The HLE is often conceptualized as shared-booking reading alone (Payne, Whitehurst, & Angell, 1994; Scarborough & Dobrich, 1994), however the construct is in actuality much broader and includes parenting practices that are specifically aimed at enhancing early educational outcomes such as shared reading, instructional activities, and educational games (Sénéchal, 2006; Sénéchal & LeFevre, 2002; Whitehurst & Lonigan, 1998). Further, there is some suggestion in the literature that shared-book reading influences different skills than other aspects of the HLE (Whitehurst & Lonigan, 1998). While shared reading has been linked with children's oral language development (Arnold, Lonigan, Whitehurst & Epstein,

1994; Paulson, Keefe, Leiferman, 2009), the literature indicates that the direct teaching activities parents engage in with their children are of critical importance for explaining the acquisition of early literacy skills (Sénéchal, LeFevre, Thomas, & Daley, 1998; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998).

Research has shown that maternal depression influences a variety of parenting practices, including those practices that are conceptualized as a part of the HLE (Kohl, Lengua, & McMahon, 2000). Specifically, the extant literature indicates that parent-child communication, in amounts and complexity (Cox, Puckering, Pound, & Mills, 1987; Field, 1995), as well as rates of shared-reading (Bigatti et al., 2001; Davis, Davis, Freed, & Clark; 2011; Kohl, Lengua, & McMahon, 2000; Lyons-Ruth, Lyubchik, Wolfe, & Bronfman, 2002), drops precipitously among depressed mothers. Furthermore, depressed mothers are less likely to engage in other HLE-related parenting behaviors, such as having a regular reading time, taking the child to the library, and singing to their child (Bigatti et al., 2001). When shared-reading does occur, depressed mothers read for shorter amounts of time and ask fewer questions during the reading interaction than non-depressed mothers (Bigatti et al., 2001). In addition, the overall quality of the interaction is lower than for non-depressed mothers (Reissland, Shepherd, & Herrera, 2003). However, this research has been relatively limited, particularly when taking into consideration the subsequent impact of depressed mothers' HLE-related parenting on children's early literacy skills.

While the literature has not fully examined the process through which mothers' depression influences children's early literacy, there is some support in the literature that the HLE may play an important role. Maternal depression has been shown to have a decided negative effect on both the quantity and quality some of the parenting activities that comprise the

HLE and are also related to children's early literacy (Bigatti et al., 2001; Middleton, Scott, & Renk, 2009; Son & Morrison, 2010). In one of the few studies to examine the HLE in relation to parent depression and early literacy, lower levels of maternal depressive symptoms were associated with greater positive changes in the HLE over time. These positive changes in the HLE were associated with gains children's expressive and receptive language skills (Son & Morrison, 2010). In contrast, other research suggests that the effect of maternal depression on children's early literacy is through other aspects of parenting, such as warmth (Baker & Iruka, 2013).

While there is some emerging evidence for the impact of maternal depression on the HLE and, subsequently, children's academic abilities, this body of research has primarily focused on the influence of mothers' depression, and rarely considers the role of fathers' depression. The role fathers play in child development is receiving increasing attention and this research is showing that fathers contribute in unique ways to children's development (Downer, Campos, McWayne, & Gartner, 2008). In addition, research shows that father-child relationships may be more susceptible to depression than mothers-child relationships (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Cummings, Goeke-Morey, & Raymond, 2004). Regarding the influence of paternal depression on child educational outcomes specifically, there is some research to indicate that fathers with higher levels of depressive symptoms engage in less shared-reading (Davis et al., 2011; Paulson et al., 2009) and this reduction of shared-reading is linked to decreases in expressive vocabulary (Paulson et al., 2009), a skill that is closely related to literacy (Catts, 1993). Taken together, these findings suggests that fathers' role in supporting children's educational outcomes is significant and needs to be considered as part of the HLE that children experience, particularly when fathers are experiencing depressive symptoms.

Few studies have jointly considered mothers' and fathers' depression on child outcomes and those that do consider each parent's interactions with their child separately. While there are some methodological benefits to this approach (i.e., eliminates the issue of multicollinearity), family systems and human ecological perspectives advocate for including mothers and fathers in this research (Bronfenbrenner & Morris, 2006; Lamb, 2010; Marsiglio, Amato, Day, & Lamb, 2000). Research suggests that one parent's levels of depression can also influence the other parent's own level of depression (Brennan, Hammen, Katz, & LeBrocq, 2002; Katz, J., Beach, S. & Joiner, 1999) and their parenting behaviors (Ponnet, Wouters, Mortelmans, Pasteels, De Backer, Van Leeuwen, & Van Hiel, 2013). By constructing separate mother and father models, the relationship between mothers' and fathers' depression and their partners' parenting is not taken into account. Dyadic data analysis approaches have been proposed as theoretically appropriate methods that take into account the interdependent nature of these data (Kenny, Kashy, and Cook, 2006). The Actor-Partner Interdependence Model allows for the simultaneous examination of the influence of individuals' depression on their own parenting, termed an actor effect, and on their partners' parenting, termed a partner effect (Kenny, 1996). Studies examining the influence of parent depression on parenting from a dyadic framework are very limited, and even more so when we are interested in specific actor and partner effects.

The literature is mixed as to whether the effect of depressive symptoms on parenting is driven largely by one's own depressive symptoms (i.e. actor effects) or by one's partner's depressive symptoms (i.e. partner effects). Two studies have identified only partner effects for both mothers and fathers, indicating that, for both parents, depression is more likely to influence their partners' parenting rather than their own (Nelson, O'Brien, Blankson, Calkins, and Keance, 2009; Ponnet, Wouters, Mortelmans, Pasteels, De Backer, Van Leeuwen, & Van Hiel, 2012).

Conversely, another study found both mothers' and fathers' levels of depression influenced both their own and their partners' parenting (Malmberg and Flouri, 2011). Regardless, these findings indicate that both mothers' and fathers' parenting is susceptible to depressive symptoms experienced by their partners.

It is important to note these studies focused on other aspects of parenting, such as support (Nelson et al., 2009), parent-child communication (Ponnet et al., 2012), and parent-child relationship quality (Malmberg & Flouri, 2011), rather than the specific parenting behaviors associated with the HLE. The only other study to date to specifically examine the effect of parent depressive symptoms on an aspect of parenting related to the HLE (shared reading) from a dyadic data analysis perspective found that there were only actor effects for fathers and no partner effects for either mothers or fathers (Paulson et al., 2009). The results of this study indicated that fathers who reported more depressive symptoms engaged in fewer shared reading interactions, but mothers' shared reading was not influenced by their own depressive symptomatology. This suggests that fathers' shared reading may be more susceptible to depressive symptoms than is mothers'. Further, neither mothers' nor fathers' depressive symptoms influenced their partners' shared reading. This conflicts with other dyadic research on the nature of the mutual influence of parents' depressive symptoms on their own and each other's parenting, indicating that this process may be unique for some aspects of the HLE.

I will also examine mediating mechanisms within these dyadic data, focusing specifically on the mediating role of the HLE in the relation between parent depressive symptoms and children's early literacy. Mediation models offer the opportunity to examine the possible pathways through which parent depressive symptoms may influence child outcomes (Ledermann, Macho, & Kenny, 2011). This is important for gaining an understanding of not only

whether parent depressive symptoms influence child early literacy outcomes, but also the process by which this influence occurs (Ledermann et al., 2011). Paulson and colleagues (2009) examined the effect of parent depressive symptoms on children's early outcomes from a mediation framework, however they focused on children's language skills. Interestingly, this study showed that, when both mothers and fathers are considered together, only fathers' depressive symptoms influenced children's expressive language and that this relationship was mediated by shared reading (Paulson et al., 2009). In regards to early literacy specifically, the pathways through which parent depressive symptoms influence children's skills have not been determined.

The Current Study

The current study addresses this gap by approaching these factors from a dyadic approach to mediation with two primary goals. The first is to examine the influence of parental depressive symptoms on HLE-related parenting behaviors. I expect that HLE-related parenting will be associated with parent depressive symptoms. Further, I expect to identify both actor and partner effects of depressive symptoms on HLE-related parenting behaviors for both parents. The second goal of this study is to determine whether parent depressive symptoms influence children's early literacy skills and if this relationship is mediated by the HLE. Because the HLE is strongly associated with children's academics it is hypothesized that parental depressive symptoms will significantly influence children's early literacy skills indirectly through the HLE. The results of this study will advance our understanding of how these complex processes work together to influence children's early academic skills.

Method

Participants

Participants included 788 families with children who attended one of three preschools associated with a large, Midwestern university. Families and their child were recruited as part of an ongoing, multi-site study on children's academic and socioemotional development. Children were 49% male and the average age was 49 months ($SD = 6.8$). Parents were generally well educated, with 52% of mothers and 50% of fathers having attained a bachelor's degree or higher. The majority of children were White (80%), however 7% were Asian or Pacific Islander, 2% were Hispanic or Latino, 3% were Black or African American, and 6.7% were multiracial. English was the primary language spoken in the majority of homes (92%). The demographics for children's race, ethnicity, and primary language are reflective of U.S. census data for the counties in which the data is collected (U.S. Census Bureau, 2011). Demographic information is presented in Table 3.1

Procedures

Data collection began in the fall of 2009 and concluded in the spring of 2012. In the fall of each year, all families associated with three preschools were invited to participate in the current study. Parents who consented were given a series of questionnaires that assess their levels of depressive symptomatology and their behaviors related to the HLE that they provided to children. Seventy-four percent of mothers and 49% of fathers who consented returned the questionnaires for a final sample size of 629. Independent samples t-tests indicated that there were no significant differences between the literacy scores of children whose fathers returned the questionnaires (Letters: $M = .17$, $SD = .96$; Decoding: $M = 329.82$, $SD = 27.45$; Phonological Awareness: $M = 12.57$, $SD = 6.10$) and fathers who did not (Letters: $M = .08$, $SD = .94$, $t(563) = -.55$; $p = .91$; Decoding: $M = 328.97$, $SD = 24.85$, $t(505) = -.163$; $p = .49$; Phonological Awareness: $M = 12.70$, $SD = 4.85$, $t(417) = .098$; $p = .17$).

TABLE 3.1
Descriptive information of study participants

Child Demographics		
Age in Months (N = 625)		
Min	30.94	
Max	74.97	
Mean	48.99	
SD	6.88	
Gender (N = 600)		
Female	306 (51.0%)	
Male	294 (49.0%)	
Race (N = 614)		
Black or African American	16 (2.6%)	
White (not Hispanic/not Latino)	489 (79.6%)	
Hispanic or Latino	14 (2.3%)	
Asian	45 (7.3%)	
Multi-racial	41 (6.7%)	
Other	9 (1.4%)	
Language (N = 629)		
English	579 (92.1%)	
Korean	6 (1.0%)	
Chinese	6 (1.0%)	
Spanish	8 (1.3%)	
Other	30 (4.6%)	
Parent Education		
	Maternal Education (N = 589)	Paternal Education (N = 371)
Highest Degree Obtained		
Some high school	9 (1.5%)	7 (1.1%)
High school diploma or equivalent	43 (7.3%)	31 (8.2%)
Some college but no degree	223 (37.8%)	143 (37.9%)
College degree or higher	314 (53.2%)	190 (50.3%)

Similarly, independent samples t-tests indicated that there were no significant differences between the literacy scores of children whose fathers returned the questionnaires (Letters: $M =$

.25, $SD = .95$; Decoding: $M = 332.52$, $SD = 27.31$; Phonological Awareness: $M = 12.40$, $SD = 6.03$) and fathers who did not (Letters: $M = .03$, $SD = .96$, $t(565) = -2.68$; $p = .83$; Decoding: $M = 324.86$, $SD = 27.30$, $t(507) = -3.06$; $p = .59$; Phonological Awareness: $M = 12.94$, $SD = 6.02$, $t(418) = .847$; $p = .75$). Questionnaires were completed and returned via the mail individually by mothers and fathers. Trained research assistants assessed children's early literacy skills individually in children's classrooms.

Measures

Parental depressive symptoms. In order to determine the level of depressive symptomatology experienced by mothers and fathers in the study, parents completed the Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001). The PHQ-9 is a measure of depressive symptoms that is based on DSM-IV criteria and corresponds well with depression diagnoses across clinical and research settings. The PHQ-9 discriminates well between individuals with and without major depression (.95) and has a test-retest reliability of .84 (Kroenke, Spitzer, & Williams, 2001). Cronbach's alpha reliability in the current sample was .83 for both mothers and fathers.

Home learning environment. The HLE was measured using mothers' and fathers' responses on a subscale of the Parenting Questionnaire (Morrison & Cooney, 2002), which is a self-report measure of parenting behaviors. The HLE subscale includes seven items such as, "My child and I play number games such as 'This Old Man' and 'One, Two, Buckle My Shoe'," and "How frequently do you teach your child letter sounds." Parents were asked to rate, on a scale from 1 to 5, how likely they were to engage in these activities at home. See Froyen and colleagues (2013) for the full measure. Higher scores indicate that parents provided more learning activities within their homes. In previous research, the HLE subscale has directly

predicted children's general literacy skills, including letter knowledge and decoding (Hindman & Morrison, 2012; Morrison & Cooney, 2002). Cronbach's alpha reliability in the current sample was .84 for mothers and .83 for fathers.

Early literacy skills. Children completed a battery of three gold-standard assessments: letter knowledge, phonological awareness, and decoding, which were used to create a latent early literacy factor. Utilizing a latent factor with multiple indicators to measure early literacy improves our ability to ensure more reliable and accurate measurement of this construct (von Oertzen, Hertzog, Lindenberger, & Ghisletta, 2010). Loadings on the early literacy factor were strong for all three indicators (letter knowledge: .88, $p < .001$; phonological awareness: .41, $p < .001$; decoding: .92, $p < .001$).

Children's letter knowledge was measured utilizing a letter identification task wherein children are asked to identify the name of the uppercase or lowercase letter shown. In fall of 2009 and 2010 children were asked to name all 52 upper and lowercase letters. In the fall of 2011 an eight-item subset of letters was used. This subset contained letters that spanned the range of the construct and have been used in previous research (Bowles, Pentimonti, Gerde, & Montroy, 2014; Phillips, Piasta, Anthony, Lonigan, & Francis, 2012). In all years children were randomly assigned to receive one of eight randomly ordered forms. Rasch scores were constructed based on previous research (Bowles et al., 2014) so that children's letter knowledge could be examined on the same scale regardless of which format of assessment children received.

Children's phonological awareness was measured via the Test of Preschool Early Literacy (TOPEL; Lonigan, Wagner, Torgesen, & Rashotte, 2007). The phonological awareness subtest of the TOPEL assess children's blending and elision skills and demonstrates good

psychometric properties in the three to five age range, with internal consistency ranging from 0.86 to 0.88 and test-retest reliability of 0.83.

Finally, children's decoding skills, including their early knowledge of letters, words, and decoding abilities; were assessed with the Letter-Word Identification subtest of the Woodcock-Johnson III Tests of Achievement (WJ-III; Woodcock, McGrew, & Mather, 2001). Reliability for the Letter-word Identification subtest ranges from 0.96- 0.99 among children aged three to eight (Woodcock, McGrew, Schrank, & Mather, 2001, 2007).

Analysis Plan

To address the research questions outlined above I constructed an Actor-Partner Interdependence Model (Kenny, 1996) utilizing structural equation modeling (SEM) to examine the effect of mothers' and fathers' depressive symptoms on their own and each other's HLE and children's early literacy skills. There were additional paths from both mothers' and fathers' depressive symptoms to children's early literacy skills. This model is depicted in Figure 1. Overall model fit was examined using the chi-square test of absolute fit, the comparative fit index (CFI), and root mean square error of approximation (RMSEA). These fit indices were evaluated utilizing the guidelines suggested by Browne and Cudeck (1993) and Hu and Bentler (1998). In addition to examining overall model fit, the relations between the individual variables were examined. I also tested whether the effect of depressive symptoms on children's early literacy skills was mediated by the HLE for both mothers and fathers using the bootstrapping approach to indirect effects (Bollen & Stine, 1990). This approach to indirect effects is noted for being more appropriate in models with complex mediation, such as the model the current study (Preacher & Hayes, 2008).

Missing data were accounted for using the likelihood-based estimation approach

implemented in Mplus. Two variables (decoding and phonological awareness) had missing data rates above 20% because of limitations in testing time. These data are considered to be missing completely at random (MCAR; Enders, 2010). In the first year of the study the measure of depressive symptoms was not included, resulting in missing data for 35% of the families in the sample. This constitutes planned missingness, which can be considered missing at random and can be included in the analyses without bias (see Enders, 2010 for review of missing data mechanisms). Likelihood-based approaches to missing data handle planned missing data well without sacrificing power (Enders, 2010).

I also performed additional analyses controlling for child gender, race, and parent education. Child gender and race were not related to any of the study variables, their inclusion did not alter results, and including them in the model did not improve model fit. While mothers' education was related to children's literacy skills and fathers' education was related to fathers' own HLE, their inclusion did not change the pattern of results and worsened fit drastically. For the purposes of parsimony these controls were removed from the final models.

Results

The means, standard deviations, and correlations among variables included in the study are presented in Table 3.1.

Influence of Parent Depression on HLE-Related Parenting

The model, depicted in Figure 3.1, provided an adequate fit for the data ($\chi^2 = 13.7$, $df = 8$, $p = .09$; CFI = .99; TLI = .98; RMSEA = 0.03). The standardized and unstandardized loadings and regression coefficients are presented in Table 3.2.

TABLE 3.2
Means, Standard Deviations, and Intercorrelations of Study Variables (N = 629)

Variables	Min	Max	Mean	SD	1	2	3	4	5	6	7
Mother Depression	.00	20.00	2.73	3.47	-						
Father Depression	.00	18.00	2.20	2.99	.13	-					
Mother HLE	1.00	5.00	3.38	.84	-.10	-.22**	-				
Father HLE	1.00	5.00	3.19	.82	-.09	-.21**	.42**	-			
Phonological Awareness	.00	26.00	12.59	6.03	-.07	-.09	.08	-.03	-		
Decoding	264.00	478.00	329.80	27.29	-.11	-.15	.26**	.20**	.34**	-	
Letters	-1.48	2.76	.1688	.96	-.18**	-.20**	.31**	.22**	.28**	.80**	-

Note. * $p < .05$. ** $p < .01$

Results indicate that there is an actor effect of fathers such that when fathers' experience more depressive symptoms they engage in fewer HLE-related parenting behaviors ($\beta = -.19, p < .001$), however there was no actor effect of mothers' depressive symptoms ($\beta = -.06, p = .32$). As for partner effects, higher levels of fathers' depressive symptoms were related to lower HLE behaviors for mothers ($\beta = -.18, p < .001$), such that when fathers experience more depressive symptoms mothers tend to engage in fewer HLE-related activities. This constitutes a partner effect for fathers' depressive symptoms. Conversely, there was no partner effect of mothers' depressive symptoms on fathers' HLE ($\beta = -.05, p = .50$). Finally, mother's HLE significantly predicted children's literacy outcomes ($\beta = .24, p < .001$) but the effect of fathers' HLE on child skills was not significant ($\beta = .10, p = .12$).

TABLE 3.3

Unstandardized, Standardized, Significance Levels for the Model in Figure 3.1 (N = 629)

Pathways	Unstandardized	SE	Standardized	<i>p</i>
Mother Depression → Mother HLE	-0.01	0.01	-0.06	.32
Mother Depression → Father HLE	-0.01	0.02	-0.05	.50
Father Depression → Father HLE	-0.05	0.02	-0.18	.00
Father Depression → Mother HLE	-0.05	0.02	-0.19	.00
Mother HLE → Early Literacy	0.61	0.16	0.24	.00
Father HLE → Early Literacy	-0.24	0.16	0.10	.12
Mother Depression → Early Literacy	-0.06	0.04	-0.10	.14
Father Depression → Early Literacy	-0.08	0.05	-0.11	.16

Note. $X^2(8) = 13.7$. CFI = .99. TLI = .98. RMSEA = .034.

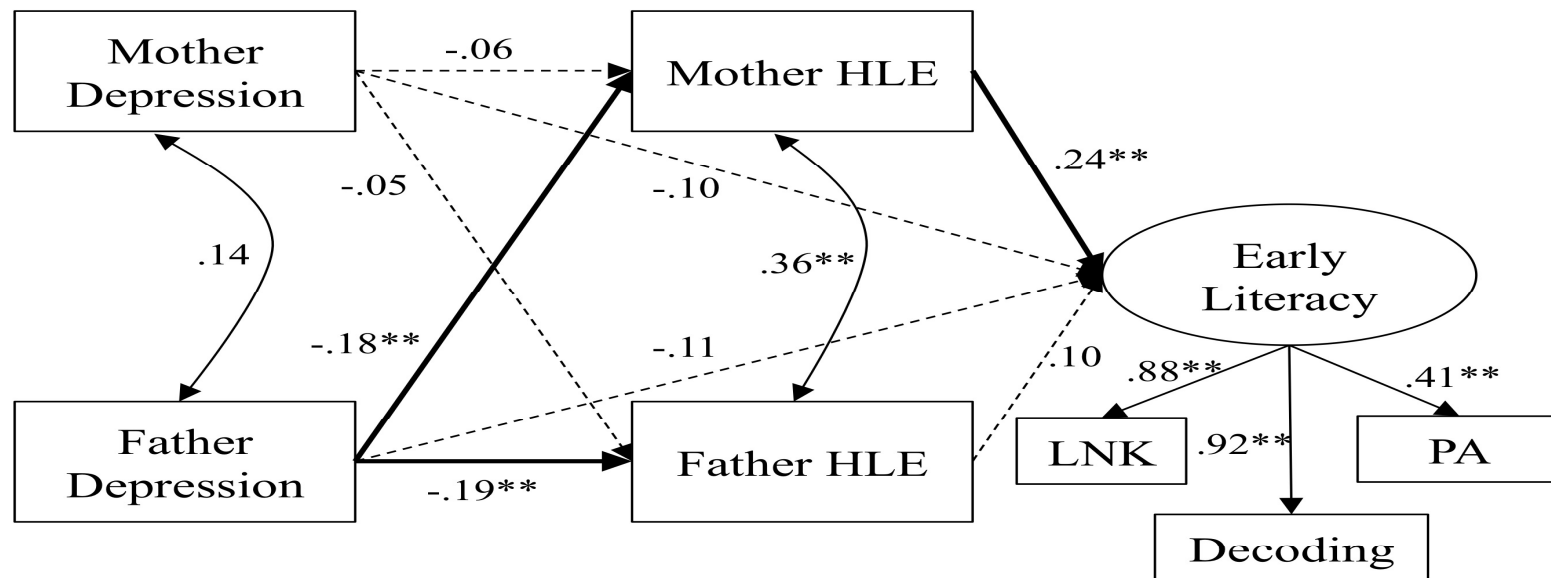


FIGURE 3.1. APIM: Effect of Parent Depression on Children’s Early Literacy Mediated by the HLE.

Note. Coefficients are standardized estimates; LNK: Letter Knowledge; PA: Phonological Awareness; * $p < .01$, ** $p < .001$;

$X^2(8) = 13.7$. CFI = .99. TLI = .98. RMSEA = .034.

Effect of Parent Depression on Children's Early Literacy Skills

The next step in the analyses examined whether HLE- related parenting behaviors mediated the relation between parental depressive symptoms and early literacy for mothers and fathers. First I simultaneously estimated the direct effect of both mothers' and fathers' depressive symptoms on children's early literacy skills. Fathers' depressive symptoms significantly predicted children's early literacy skills ($\beta = -.17, p = .03$) when the HLE was not in the model, but mothers' depressive symptoms did not ($\beta = -0.12, p = .08$). When mothers' and fathers' reports of the HLE were added into the model and mother and father depressive symptoms was allowed to freely predict their own and each others HLE, and children's literacy skills directly, fathers' depressive symptoms no longer significantly predicted children's early literacy skills ($\beta = -0.10, p = .25$) and the influence of mothers' depressive symptoms was also reduced ($\beta = -0.11, p = .15$). According to the traditional Baron and Kenny (1986) approach to mediation this constitutes complete mediation. The indirect effect of mother's HLE accounts for 23% of the total effect of father's depressive symptoms on children's literacy skills.

I further confirmed the existence of an indirect effect by estimating the indirect effect and constructing a 95% confidence interval containing the true effect utilizing 10,000 bootstrap samples. Bootstrapping is a resampling procedure that repeatedly resamples from the dataset to estimate the indirect effect. When this resampling is repeated enough times a sampling distribution is approximated and used to construct confidence intervals for the indirect effects of interest. Once constructed, if the confidence interval for the indirect effect does not contain zero it can be surmised that the indirect effect is significantly different than zero and is thus significant.

The estimated indirect effect of fathers' depressive symptoms on children's literacy through mothers' HLE was -0.035. This implies that children's early literacy skills are expected to decrease by .035 for every one standard deviation increase in father's depressive symptoms when only mother's HLE is taken into consideration. Based on 10,000 bootstrap samples with replacement, the bootstrapped confidence interval did not include a zero (95% CI: [-0.078, -0.011]), which implies that the estimated indirect effect is significantly different than zero. This finding suggests that the effect of fathers' depressive symptoms on children's literacy skills is significantly mediated by mothers HLE-related parenting behaviors such that, when fathers reported higher levels of depressive symptomatology, mothers report engaging in fewer HLE-related parenting behaviors, which negatively influences children's early literacy skills. This finding will be more fully discussed below. It is also important to note that, in addition to being the only significant indirect effect observed, this indirect effect is at least 2.5 times the size of the other indirect effects.

Discussion

Previous research has repeatedly noted the deleterious effect of parent depressive symptoms on a variety of children's outcomes (Baker & Iruka, 2013; Barbarini et al., 2006; Cummings, et al., 2005; Fagan & Lee, 2013; National Research Council and Institute of Medicine, 2009; Paulson, et al., 2009). This study extends previous work by demonstrating that children's early literacy skills are negatively impacted by parent depressive symptoms and that this influence occurs via the HLE. Notably, I found that fathers' depressive symptoms negatively influence both their own (actor effect) and mothers' (partner effects) HLE related parenting. Further, the influence of fathers' depressive symptoms on children's early literacy skills is through mothers' HLE-related parenting skills rather than their own.

The results of this study extend our understanding of both the influence of maternal and paternal depressive symptoms on children's early academic skills, and the pathway through which this influence occurs. Further, these findings highlight the importance of including both mothers and fathers in studies examining the influence of parents on children's development. By including both mothers and fathers I was able to detect a partner effect of depressive symptoms on HLE-related parenting and determine the pathway through which fathers' depressive symptoms influence children's early literacy skills.

Actor Effects

Fathers' depressive symptoms were related to their own HLE- related parenting behavior such that higher levels of paternal depressive symptoms were associated with decreases in their own HLE-related parenting behaviors. Research on the influence of depression on aspects of parenting outside of the HLE is mixed, with some studies suggesting actor effects (Malmberg & Flouri, 2011), while others do not (Nelson et al., 2009; Ponnet et al., 2012). This study suggests that, for fathers at least, depressive symptoms influence their own HLE-related parenting. These findings confirm previous research in this area showing that depressive symptoms negatively influence the set of parenting behaviors related to the HLE (Bigatti et al., 2001, Paulson et al., 2009). There are specific symptoms characteristic of depression, such as reduced energy and interest in normal activities (American Psychological Association, 2013) that may directly contribute to changes in parenting.

In contrast, mothers' own depressive symptoms were not significantly associated with their own HLE behaviors. This reflects recent meta-analytic findings that suggest that mother-child relationships are less vulnerable to the parents' own depression than are father-child relationships (see Lovejoy et al., 2000; Ramchandani & Psychogiou, 2009; Wilson & Durbin,

2010, for recent reviews). It has been suggested that, due to traditional gender roles in parenting, mothers may be less likely, and indeed less able, to withdraw from their parenting role while experiencing depressive symptoms than are fathers (Paulson et al, 2009).

Partner Effects

While researchers examining other aspects of parenting have observed partner effects of parent depressive symptomatology, the only other study to investigate the effect of depressive symptoms on parenting related to the HLE from a dyadic perspective did not identify a partner effect of depressive symptomatology on HLE-related parenting (Paulson et al., 2009). These researchers found that the amount of time mothers spent reading to their children was not related to fathers' depressive symptoms. In contrast, the current study did identify a partner effect of fathers' depressive symptoms on mothers' HLE-related parenting. This partner effect indicates that when fathers report higher levels of depressive symptoms mothers tend to engage in fewer HLE-related parenting behaviors. There are several possible explanations for this intriguing finding.

Research suggests that parents' stress increases as their ability to meet the demands of parenting decreases (Cooper, McLanahan, Meadows, & Brooks-Gunn, 2009) and that parents in situations often associated with higher parenting stress, such as poverty or parenting a child with special needs, engage in fewer HLE activities (Marvin & Mirenda, 1993). One reason for this may be that parents in these stressful situations prioritize more essential parenting, such as caring for the physical needs of the child, over the less essential parenting associated with the HLE. In light of this, it is possible that when fathers experience higher levels of depressive symptoms they may disengage from their parenting roles, essentially denying mothers the support of a co-parent and forcing the mother to take on more parenting overall. This would

potentially force mothers to prioritize more essential parenting tasks and leave less time for HLE-related parenting.

In contrast to the findings of the current study, previous research has not supported a partner effect of fathers' depressive symptoms on mothers' HLE (Paulson et al., 2009). However, these authors chose to focus on one aspect of the HLE, shared reading, while I focused on HLE-related parenting more broadly. While shared reading is a part of our measure of the HLE, shared reading is only one aspect of the HLE that is frequently linked to child outcomes (Morrison & Cooney, 2002). Shared book reading is frequently highlighted in the media, popular parenting sources, and even government initiatives (US DHHS, 2010; Klass, 2002). Given all of this hype, it is possible that, in the face of fathers' depressive symptoms and possible increased parenting responsibilities, mothers may continue to engage in shared reading while possibly neglecting other domains of the HLE. In sum, this finding is novel in the literature and broadens our understanding of the complex interaction between parent depressive symptoms and their own and their partner's HLE-related parenting.

Influence of Parent Depression on Early Literacy

Despite the preponderance of evidence that the HLE is crucial in preparing young children for school (Storch & Whitehurst, 2001), we do not currently have a complete understanding of the influence of parent depressive symptoms on this specific type of parenting, and how this ultimately impacts children's early literacy. The current study is the first to identify fathers' depressive symptoms as having a significant, negative indirect effect on children's early literacy skills. This negative effect was mediated by mothers' report of their own HLE-related parenting behaviors such that increases in father depressive symptoms were related to decreases in mothers' HLE-related parenting behavior. This decrease in

mothers' HLE-related parenting behaviors as a result of fathers' depressive symptoms was related to a decrease in early literacy skills for children in these families. The results of this study indicate that father's depressive symptoms constitutes a risk factor for children's early literacy skills.

As expected, given the non-clinical nature of the community sample studied, effects of depressive symptoms were relatively small. However, the results show that even small differences in fathers' depressive symptoms have an effect on both mothers' HLE and, subsequently, children's early literacy skills. Current epidemiological research indicates there is a high prevalence of clinical depression among parents of young children (Davé, Petersen, Sherr, & Nazareth, 2010; Paulson & Bazemore, 2010), and it is reasonable to assume that even higher proportions of the population are experiencing symptoms of depression at a subclinical level, similar to the parents in the current study. This study shows that even subclinical levels of depression have significant potential to negatively influence children's early literacy skills. This is important given research that shows small differences in these early literacy skills may translate to large differences later in life (Foster & Miller, 2007; Storch & Whitehurst, 2001; Torgesen, Wagner & Rashotte, 1994).

Limitations

There are several important limitations to consider when interpreting these findings. The sample was fairly homogenous in terms of race, parent education and levels of depressive symptoms. It is possible that results would be even stronger in a more ethnically diverse and/or at-risk sample (Evans, Li, & Whipple, 2013). It is also possible that actor and partner effects of mothers' depressive symptoms may emerge in a sample with higher levels of depressive symptoms as the effects of depression tend to be more subtle in community

samples (Gelfand, & Teti, 1990; Cummings et al., 2005). In addition, parent measures were self-report and may be subject to corresponding bias. Future research in the area should consider obtaining reports from multiple informants, such as partner or clinical diagnostic reports of depression, and observational methods for the HLE, which would allow for greater confidence in the veracity of results. Finally, this research examined concurrent data and a longitudinal research design may be able to further clarify the relationship between parent depressive symptoms and children's early academic skills. Taking such an approach may reveal that the effect of parent depressive symptomatology is additive over time, as indicated by previous research (Sektnan, McClelland, Acock & Morrison, 2010), such that longer parents are depressed, the more detrimental that depression is to children's early literacy skills. This would be in line with research indicating that living in deleterious circumstances in a persistent fashion is increasingly detrimental to child development (Evans, 2013).

Practical Implications

This study potentially has important implications for clinicians and practitioners in both clinical and school settings. The results of this study indicate that children in a typical community sample may benefit from interventions that target both parent mental health and the HLE. Indeed research shows that changes in parent depressive symptoms are linked with changes in the HLE over time (Son & Morrison, 2010). There is also an indication that parents of young children, especially fathers, may benefit not only from education regarding the negative effect of even non-clinical depression, but also the effect their depressive symptoms may have on their partners' parenting. In addition, this work highlights the importance of screening for and detecting depressive symptoms among parents of young children. While increased attention has been given to the incidence and effects of depression

in the postnatal period, for both mothers (Zimmer, & Minkovitz, 2003) and fathers (Paulson & Bazemore, 2010), this study suggests that we should be continuing to screen for parent depressive symptoms as children age. This is particularly true for fathers whose depressive symptoms are repeatedly being shown to influence child outcomes (Wilson & Durbin, 2010).

For clinicians working with parents of young children this study highlights the importance of considering the impact of depressive symptoms on the rest of the family system. There is some research to suggest that dyadic approaches to treating depression are more effective and one reason for this may be that the partner of a depressed person may be in need of additional supports (Gollan, Friedman, & Miller, 2002; Keller, Cummings, Peterson, & Davies, 2009). In addition, it may be beneficial for clinicians to make their clients aware of the trickle-down effect of depressive symptoms and provide strategies to buffer their children from these negative effects. Traditional interventions aimed at enhancing engagement in HLE-related parenting behaviors often attempt address the contextual barriers to involvement that parents face, with mixed results (Hindman, Miller, Froyen, & Skibbe, 2012 2012). This study shows that parent depressive symptoms may be one of these barriers in need of attention.

Conclusion

Findings from the present study highlight the importance of considering the potential negative effects of parent depressive symptoms on children's early literacy skills. As a complement to research indicating that maternal depression has deleterious effects on child development (Gelfand, & Teti, 1990), this research emphasizes the importance of considering fathers' mental health as a factor in children's early academic wellbeing. Further this study highlights the interaction between fathers' mental health and mothers' parenting. In addition,

results show that it is fathers' depressive symptoms, not mothers', that influence children's early literacy, indicating that by failing to include fathers in research we may not have a complete picture of how children's early literacy skills are influenced by parent depressive symptoms. This study demonstrates that parent depressive symptoms influence the early literacy skills that set children on the road for academic success, underlining the importance of early interventions that take context of the child into consideration. This study indicates that interventions that fail to target fathers specifically have the potential to not be as effective in increasing the efficacy of the HLE as it relates to children's skills. These findings have important implications for policy given the ever increasing concern that large portions of children entering into formal schooling do not have the skills necessary to succeed (National Reading Panel, 2000; Storch & Whitehurst, 2001; US DHHS, 2010).

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CHAPTER FOUR: CONCLUSION

There is an ever-increasing emphasis placed on ensuring that children are prepared when they enter into formal schooling. This has to do with the strong relationship between early skill level and later academic and economic success (National Reading Panel, 2000; Storch & Whitehurst, 2001). Chief among these skills is early literacy. The skills contained within the construct of early literacy have been identified as some of the strongest predictors of future success in both reading specifically and academics generally (Foulin, 2005; National Reading Panel, 2000; Wagner, Torgesen, & Rashotte, 1994). In addition, these skills are related to academic success through elementary, middle, and high school; college, and even future career prospects (Storch & Whitehurst, 2001; 2002). There has been a strong call to understand the ways we can support this skill set that is crucial to school readiness. One of the most frequently suggested methods for achieving this is through supporting parents to take an active role in preparing their children for school (U.S. DHHS, 2010).

The home learning environment (HLE) has been identified as one of the primary ways we can target these skills. Research overwhelmingly indicates that the HLE- related activities in which parents engage their children, such as shared-reading and active educational instruction, are directly related to the skills children display as they transition to formal schooling (Bjorklund, Hubertz, & Reubens, 2004; Bjorklund & Rosenblum, 2001; Cannon & Ginsburg, 2008; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; 2& Cooney, 2001; Storch & Whitehurst, 2002). However, our understanding of how the broader family system, namely parent mental health, marital functioning, and the emotional environment, influences both the HLE and children's subsequent skills is unclear at this time (Belsky & Fearon, 2004; Froyen, et al., 2013). The studies in the present dissertation contribute

significantly to our understanding of how these complex family processes influence children's early literacy skills.

Family Process and Children's Early Literacy

Existing research indicates that marital and family functioning and parent mental health (e.g., depressive symptoms) has a significant impact on children's overall academic, social, and emotional wellbeing and development (Cummings & Davies, 2002; Cummings, Keller & Davies, 2005; National Research Council and Institute of Medicine, 2009). The line of research contained within this dissertation adds to this literature by demonstrating that parent and family functioning similarly influence children's early literacy skills. I first examine the role of broader family relationships and functioning from the perspective of both mothers and fathers. Specifically, Study One shows that the quality of the marital relationship is important for children's early literacy skills because of its influence on the emotional atmosphere of the family, which then influences the HLE-related parenting behaviors that support early literacy skills. This study is in line with previous research suggesting that the marital relationship influences the broader family emotional environment and general parenting (Belsky, 1984; Cummings, Davies, & Campbell, 2000; Erel & Burman; 1995). Further, Study One highlights the importance of considering the family as a whole when examining contextual factors that influence children's early literacy.

In Study Two, I consider aspects of each parent's own individual functioning that may interfere with children's early literacy. While past research has linked parental depressive symptoms to children's early literacy skills (Baker & Iruka, 2013; Barbarini et al., 2006; Fagan, 2013; Fagan & Lee, 2013; Foster, Lambert, Abbot-Shim, McCarty & Franze, 2005; Greenberg, et al., 1999) this literature is based nearly entirely on maternal report with only

one study examining fathers' depression (Fagan & Lee, 2013). Study Two showed that fathers' depressive symptoms have a significant, negative indirect effect on children's early literacy skills. Research examining the influence of both mothers' and fathers' depressive symptoms on the HLE and children's early outcomes in the same model is scarce. The one other study to attempt this showed that mothers' depressive symptoms was not related to the HLE, as conceptualized by shared-reading (Paulson, Keefe, & Leiferman, 2009). Using a broader measure of the HLE, Study Two also found that fathers' depressive symptoms, but not mothers', influence the HLE, but we also found that fathers' depressive symptoms influences mothers' HLE. This study shows that the negative effect of fathers' depressive symptoms on children's early literacy skills is through mothers' HLE-related parenting, highlighting the importance of including both parents in studies examining parent mental health and child outcomes. When considered together these studies indicate that understanding the role of the broader family environment, in terms of mental health, marital functioning, and family emotions, is critical if we are to support families in fostering their children's early literacy skills.

Importance of Including Fathers

Research suggests that a variety of family factors are important for child functioning in terms of social, emotional, and academic wellbeing (Cummings & Davies, 1994; Cummings et al., 2005; Grych & Fincham, 1990). However, the majority of this work is predicated on two core, and possibly unfounded, assumptions that (1) studying only mothers adequately captures these family factors and (2) fathers do not make a unique contribution to these family processes (Lamb, 2010). The inclusion of fathers in this line of research constitutes a significant contribution to the literature in that I identify unique contributions of

fathers in Study One and highlight the effect of fathers' depressive symptoms on mothers' HLE-related parenting in Study Two.

While previous research indicates that the ways in which marital and family functioning influences child outcomes may differ for mothers and fathers (Coiro & Emery, 1998; Cummings et al., 2005), this research primarily examines these differences in separate models, an approach that fails to consider the interrelated nature of these data (Kenny, Kashy, and Cook, 2006). As a result of including fathers in the present studies we can conclude, for the first time, that fathers make a unique contribution to the way that the family system influences the HLE and children's functioning. In Study One, I found differences for how fathers' own perceptions of their marital relationship contributed to the emotional environment of the family and the parent-child interactions within the context of the HLE. The extant literature suggests that the influence of marital functioning on parenting and the family emotional environment is different for mothers and fathers (Coiro & Emery, 1998; Jouriles & Farris, 1992), and this study adds to this body of research by identifying specific family factors that are unique for fathers. The findings of Study One suggest that, while the marital relationship is important for setting the tone of the family emotional environment for both mothers and fathers, the process through which this occurs is unique for fathers. Specifically, fathers' with higher relationship satisfaction were more likely to perceive higher levels of positive expressiveness in their families. In addition, Study One suggests that fathers' perceptions of emotional expressivity in the family are particularly crucial for the HLE. When fathers perceive the home as more positive and less negative both parents report engage in more HLE-related parenting.

In Study Two, fathers' depressive symptoms, but not mothers', were related to children's early literacy skills. While previous research has suggested that fathers' depressive symptoms influence children's early language outcomes through their own HLE (Paulson et al., 2009), the current study suggests that, at least for early literacy, the deleterious effect of fathers' depressive symptoms are through mothers' HLE. This novel finding is exceedingly important as it indicates that fathers' depressive symptoms are not only negatively influencing their own parenting, but their partners' as well, and that this has significant implications for children's early literacy achievement. In contrast to some previous research, findings from my work indicate that maternal depressive symptoms were not related to children's early literacy outcomes, or to the HLE. Taken together, the results of these two studies highlight the importance of approaching research that examines family influences on children's early academic skills from a whole family perspective and that including fathers in this work is crucial if we are to fully understand these family processes.

Contributions to Theory

Family systems theory, the bioecological model of human development, and family process models (Belsky, 1984; Bronfenbrenner & Morris, 2006; von Bertalanffy, 1976) heavily informed the studies contained within the current dissertation. I utilized these theories to inform a conceptual framework developed for this dissertation, which then served to guide the goals of the two studies (Figure 1.3). The findings of this dissertation are in line with current conceptualizations of family systems and human ecological theory that suggest that individuals are influenced by the systems that surround them (Bronfenbrenner & Morris, 2006; von Bertalanffy, 1976). In addition, these studies lend support to the appropriateness of

the use of these theories when examining the influence of the family on children's early literacy.

Study One identifies marital and family emotional functioning as factors that influence children's early literacy skills, highlighting the importance of considering the family microsystem as a whole in children's early literacy achievement. Previous research on the role of the family in children's early literacy has focused almost exclusively on the proximal processes contained within the HLE (Belsky & Fearon, 2004; Froyen et al. 2013). This study broadens the scope of this work and confirms the theoretical supposition that more distal processes are also important for children's early development (Bronfenbrenner & Morris, 2006).

Study Two demonstrates that individual parent functioning, in the form of depressive symptomatology, also influences children's early literacy skills by directly impacting parent-child educational interactions. The results of the second study fit with human ecological and family systems theories and family process models (Belsky, 1984; Bronfenbrenner & Morris, 2006; von Bertalanffy, 1976) by highlighting the often-complex ways that children are influenced by the systems in which they are embedded. Further, Study Two highlights the transactional nature of these relationships, with fathers' depressive symptoms influencing children not through their own HLE, but by influencing mothers' HLE.

Collectively the findings of the current studies confirm the accuracy of family process models (Belsky, 1984; Cummings et al., 2000), which propose parenting as one of the primary ways that disturbances in other parts of the family system trickle down to children. Previous research has confirmed that various aspects of parenting, such as warmth and discipline, are one of the paths through which family and individual parent functioning

influences child outcomes (Cummings et al., 2000; Erel & Burman; 1995; Wilson & Durbin, 2010). However, HLE-related parenting behaviors are often not included in conceptualizations of parenting in studies that investigate the role of marital and family emotional functioning in child wellbeing (Froyen et al., 2013). There is a preponderance of research to support the role of the HLE in children's early academic skills (Storch & Whitehurst, 2001), but there is an obvious disconnect between this literature and the marriage and family literatures.

Study One attempts to bridge these two literatures and demonstrates that these marriage and family processes influence HLE-related parenting in much the same way as they influence other aspects of parenting. While there is some previous research to confirm the influence of parent depressive symptoms on HLE-related parenting (Paulson et al., 2009), Study Two shows that father's mental health not only influences his own HLE-related parenting, but his partners' as well, confirming the mutual influence of co-parenting dyads suggested by family process models (Belsky, 1984; Cummings et al., 2005). Taken together, these findings suggest that family process models are also relevant for HLE-related parenting behaviors and children's early literacy outcomes.

Implications

While the size of the indirect effects for these two studies are small, there are three crucial factors to consider when interpreting these results. First, and foremost, the early literacy indicates that gaps in these skills widen with age (Foster & Miller, 2007; Torgesen, Wagner & Rashotte, 1994). Early intervention studies suggest that the gains made in literacy skills in early childhood hold as children age and may prevent long-term literacy challenges (Cartledge, Yurick, Singh, Keyes, & Kourea, 2011; Berrninger, Abbott, Vermeulen, Ogier,

Brooksher, & Zook, 2002; Vellutino, Scanlon, & Jaccard, 2003; Vellutino, Scanlon, Sipay, Small, Pratt, & Chen, 1996). The results of these studies are significant as they identify specific family processes that are either supportive or detrimental to children's early literacy skills. Any factor that is protective for these skills has the potential to strongly influence later literacy skills that are crucial to academic and economic success (Storch & Whitehurst, 2001; 2002). Second, this study focused on a community sample with relatively low levels of risk, yet the results indicate that even small variation in depressive symptoms, marital quality, and the emotional environment are linked to child outcomes. And finally, this study confirms the influence of distal family processes on the more direct proximal process of the HLE, and ultimately children's early literacy skills. It is expected that proximal processes will be more strongly associated with child outcomes than distal processes, yet these works indicate that the consideration of these distal processes is vital for a complete picture of how families influence preschoolers' early literacy skills (Bronfenbrenner & Morris, 2006).

Practice. The results of the current dissertation emphasize the importance of considering the broader family influence on children's early literacy skills and point to potential considerations for practitioners across multiple settings. Early literacy skills are incredibly important for future academic success and there is a significant concern that large portions of children entering into formal schooling are doing so without the skills necessary to succeed (Foster & Miller, 2007; Storch & Whitehurst, 2002; Torgesen, Wagner & Rashotte, 1994). Family-based interventions targeting children's early literacy skills typically focus on mothers (Saracho, 2008) irrespective of the fact that the necessity of including fathers has been highlighted in the literature (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000). The results of the current study underscore the importance of including fathers in

interventions. Further, the results of these studies indicate that children may benefit from interventions that target both parent and family functioning, particularly as these constructs relate to the HLE.

Specifically, Study One indicates that it will be important to develop interventions that target marital and family processes and parent-child interactions in ways that are relevant for both mothers and fathers. Study Two also highlights the importance of considering the impact of one parent's depressive symptoms on the rest of the family system. Research shows that taking a whole family systems perspective is important when working with couples with young children (Faircloth, Schermerhorn, Mitchell, Cummings, & Cummings, 2011). This recommendation seems particularly justified given the findings of the current studies. When considered together, these studies suggest that couples, families, and young children may benefit from psychoeducation regarding the negative effect of even low levels of marital dysfunction and/or depressive symptoms on children's academic success. Additionally, results suggest that parents may benefit from learning specific strategies for managing the multitude of stressors present in the lives of families with young children in order to prevent those stressors from impacting children's early academic success.

In addition, these works suggest that practitioners need to be aware of factors that may interfere with family functioning, parenting, and child outcomes, even when these factors are not severe enough to be considered clinical in nature. For clinicians working with parents of young children these studies highlight the importance of considering the impact of depressive symptoms and marital distress on the rest of the family system and, more specifically, their HLE-related parenting behaviors, especially when young children are present in the home. For teachers, these studies highlight the importance of considering the child as a whole person

embedded in a family context that may be influencing their performance in school. In cases where a child is struggling it will be crucial to investigate how the child, and the family, could benefit from more comprehensive and integrated supports.

Future research. As a whole, these studies suggest it may be useful for researchers interested in examining the role of the HLE in fostering children's skills to begin approaching these studies from a family process perspective that conceptualizes HLE-related parenting as being embedded in a context of broader family functioning. The use of observational methodologies would add to the robustness of future studies in this area (Bradley & Caldwell, 1984; Cummings, Goeke-Morey, & Papp, 2001; Grych, 2001). In order for these findings to be generalized to the broader population, it will be critical for these family processes to be investigated in samples that are more diverse in terms of demographics, and more at-risk in terms of parent depression and marital conflict. It is possible that in samples with clinical levels on these factors we may see effects differ in strength or pattern. It will also be important for future work to begin to examine these findings within research designs that will allow for conclusions about causality to be made (Cummings, et al., 2001; Grych, 2001). Finally, as more research in this area is conducted, the field should begin to translate this research into meaningful, family-based interventions that target whole child wellbeing.

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