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THE MAGIC OF PLAY: LOW-INCOME MOTHERS' AND FATHERS' PLAYFULNESS AND CHILDREN'S EMOTION REGULATION AND VOCABULARY SKILLS

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ABSTRACT: Using data from a diverse sample of low-income families who participated in the Early Head Start Research Evaluation Project ($n = 73$), we explored the association between mothers' and fathers' playfulness with toddlers, toddler's affect during play, and children's language and emotion regulation at prekindergarten. There were two main findings. First, fathers' playfulness in toddlerhood was associated with children's vocabulary skills in prekindergarten whereas mothers' playfulness was related to children's emotion regulation. Cross-parental effects were found only for mothers. The association between mothers' playfulness and children's vocabulary and emotion regulation was strengthened when fathers engaged in more pretend play and when children were affectively positive during the play. These findings show that playfulness is an important source of variation in the vocabulary and emotion regulation of children growing up in low-income families. They also point to domain-specific ways that mothers and fathers promote children's regulatory and vocabulary skills, and highlight the importance of children's positive engagement in play.

Keywords: mothers, fathers, playfulness, emotional regulation, language

* * *

The relevance of play as a developmental context for children's development has been well-documented (e.g., Ginsburg, 2007; Lester & Russell, 2010; Newton & Jenvey, 2011). Ample studies have demonstrated the association between play and chief milestones of early childhood, including language and self-regulation (Galyer & Evans, 2001; Lillard et al., 2013). Despite the overall consensus that play is fundamental for children's development, a closer look at this literature reveals several limitations. First, studies on the association between play and children's outcomes have been based on broad measures of play that do not often account for type of play, degree of creativity, or affective quality, making it difficult to determine what type of play is most important (Elias & Berk, 2002; Lillard, 2012; Trevas, Grammatikopoulos, Tsigilis, & Zachopoulou, 2003). In the extant literature, play has

been conceptualized and measured in different ways (e.g., as parents' play, as child's play, or as parents' sensitivity during play), thus making comparisons among studies difficult, at best. Second, play has been predominantly based in school settings (Jung, 2011), so the ways in which parents, especially fathers, engage in play with their children has been understudied. This is a salient omission because emerging research has shown that the quality of father-child play is predictive of children's language and regulatory behaviors (Anderson, Roggman, Innocenti, & Cook, 2013; Malin, Cabrera, & Rowe, 2014; StGeorge, Fletcher, & Palazzi, 2016). Fourth, studies on play with low-income families are rare (for an exception, see Roggman, 1991; Shannon, Tamis-Lemonda, & Margolin, 2005). Children in low-income families are at risk for a host of negative outcomes, including regulatory and language difficulties. Understanding how play can promote language and regulatory skills in this population is critical for interventions because play is an activity that is fun and enjoyable and is relatively low-cost and accessible, even to children growing up in economic disadvantage (Evans & English, 2002). Last, the majority of existing studies were not longitudinal, resulting in findings that are mostly correlational (Lillard et al., 2013; Whitebread, Basilio, Kunalja, & Verma, 2012). Guided by Vygotsky's writings, we heed

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the call in the field for further research to test multiple paths linking play to children's outcomes (Lillard et al., 2013). We focus on toddlerhood, a foundational period for development, and on *pretend play* (e.g., spontaneous physical, cognitive, and social behavior that expresses curiosity, imagination, and creativity) that is fun (or *playful*) because it is the most common type of play during early childhood and presumed to be critical for the development of cognitive and social skills (Lillard et al., 2013; Vygotsky, 1978). We focus on language and self-regulation because these skills are most predictive of later development. During early childhood, children transition from being primarily externally regulated (e.g., by parents) to being able to voluntarily control their emotional arousal, behaviors, and cognition (Blair & Ursache, 2011). The ability to self-regulate underlies many of the social and cognitive processes associated with positive school adjustment, academic achievement, and later success in the workforce (Blair & Diamond, 2008; Howse, Calkins, Anastopoulos, Keane, & Shelton, 2003). Last, we also assess the affect of the child during play interactions with parents because children who show positive affect and enjoy play are likely to benefit more than children who do not. We ask the following research questions:

- RQ1. Are there differences in playfulness (i.e., the degree to which play is creative and imaginative) between mothers and fathers?
- RQ2. Are mothers' and fathers' playfulness at 24 months associated with children's receptive vocabulary and emotion regulation at prekindergarten?
- RQ3. Are there cross-parental effects between mothers' and fathers' playfulness on children's outcomes at prekindergarten?
- RQ4. Are the associations between mothers' and fathers' playfulness and children's outcomes moderated by children's affect?

THEORETICAL FRAMEWORK

Although we know pretend play when we see it, it is a difficult construct to define (Burghardt, 2011; Lilliard et al., 2013). The most commonly used definition of pretend play is that of Krasnor's and Pepler (1980) Play is flexible (i.e., "play" eating is different from "real" eating), fun and enjoyable, nonliteral (i.e., the "play" meaning is different from the usual meaning), and voluntary. The definition of pretend play includes play that is complex in terms of representation as well as of the attributions of object properties and animation (Goncu & Kessel, 1988). Children start developing pretend-play skills around 18 to 24 months of age, either by themselves or in shared play with parents, other caregivers, and peers. During pretend play, children learn to separate the referent from the object. That is, they learn that the physical properties of an object (e.g., banana) do not restrict the way in which it can be used (e.g., as a telephone) and thus can be separated from reality based on the meaning of a particular context (e.g., using it as a

telephone; Vygotsky, 1978). Pretend play has developmental benefits for the development of several skills, particularly language and self-regulation.

Pretend play can vary in quantity, quality, sophistication, and imagination, so that just knowing that a child engages in pretend play says little about the quality of it—the degree of creativity and enjoyment of play—which is one of the reasons it is a correlate of children's development (Lillard et al., 2013). There has been a relatively concerted effort trying to define what playfulness means. Some scholars have argued that it refers to an internal predisposition to bring a playful quality to interactions, making them enjoyable, fun, and amusing (see Barnett, 1991). Others have argued that playful behaviors also reflect a state of mind in which an individual can think flexibly, can think of others' perspectives, take risks with ideas (or interactions), and allow creative thoughts to emerge (Anderson et al., 2013; Jung, 2011; Trevas et al., 2003). For this article, we define *parents' playfulness* as the degree of creativity and curiosity parents use when interacting in play with children.

Given the broad conceptualization of playfulness, it is not surprising that there is a lack of consensus on how to measure it. Some studies have used a dichotomous (yes/no) approach (e.g., Galyer & Evans, 2001) while others have assessed it as both the frequency and the level of sophistication/quality of pretend play (e.g., Lillard et al., 2013). Of the studies that have attempted to assess the quality of play, none of them have operationalized it in the same way. Some researchers have defined playfulness as play that is physical; cognitive; socially spontaneous; joyful; and, humorous (Barnett & Kleiber, 1982). Others did not clearly define it; Elias and Berk (2002) defined it as sociodramatic play whereas McEwen et al. (2007) defined it as pretend play that is enjoyable.

Overall, the literature on pretend play is not characterized by a shared definition of playfulness; it is generally correlational; it does not use a similar set of measures; focuses almost exclusively on mothers; and, mostly on children's playfulness rather than on that of the parents. Not surprisingly, a review of the literature (Lillard et al., 2013) has concluded that the claims that pretend play improves self-regulation may be overstated (Bredenkamp, 2004; Hirsh-Pasek, Golinkoff, Berk, & Singer, 2009). In this study, we address several of the limitations in this literature and improve on past measurement by assessing how parents' *playfulness*, the degree to which play is creative and imaginative (i.e., pretend rather than concrete), is related to children's self-regulation and vocabulary skills.

Playfulness and Vocabulary Skills of Low-income Children

A notable benefit of pretend play is that it helps children learn to understand (receptive vocabulary) and say (expressive vocabulary) new words. During pretend play, children practice using symbols—use one object to stand for another, develop abstract thought, and practice rich vocabulary—which are skills essential for vocabulary development (Ervin-Tripp, 1991; Vygotsky, 1978).

However, there is little information on how pretend play, especially between low-income parents and their children, helps them to develop language skills. What we know is that children from low-income families have smaller vocabularies and slower vocabulary growth than do children from middle- and high-income families (e.g., Hoff, 2003). By as early as 3 years of age, some studies have argued that many low-income children have significantly less advanced vocabulary skills than middle-income children and this gap persists upon entry to formal schooling, although there is tremendous variation (Hart & Risley, 1995). Vocabulary deficits between high- and low-income children have primarily been attributed to the home literacy environment, including opportunities to engage in pretend play as well as the quality of parent-child interactions (Hart & Risley, 1995). Nevertheless, there is great within-group variability, with many children in low-income families having advanced vocabulary skills. Although the source of this variation is unclear, it is possible that pretend play might be a potential factor. In this study, we examine whether the quality of pretend play helps children in low-income families develop receptive vocabulary.

Playfulness and Emotion Regulation of Low-Income Children

One of the major tasks of early childhood is the development of self-regulation, which is broadly defined as the ability to regulate our own arousal, emotion, and behavior (Shonkoff & Phillips, 2000). Although there has been a lack of consensus about the conceptualization and measurement of self-regulation, there has been agreement that it is composed of a combination of emotional components (emotion regulation) and cognitive responses to stimulation (e.g., attention, inhibition) (e.g., Blair & Raver, 2012). Emotion regulation is learned in the context of parent-child interaction (Cole, Martin, & Dennis, 2004), particularly pretend play (Vygotsky, 1978). Overall, self-regulated learning is characterized by the interrelated processes of metacognition and self-regulation (Whitebread & Sullivan, 2012). Metacognition generally refers to children's knowledge about and understanding of their own mental processing and that of others (Brown, 1987). While metacognition is involved in the monitoring and control of cognition, self-regulation, and emotional regulation more specifically, is conceptualized as including the monitoring and control of one's emotions, feelings, social behaviors, and motivations (Whitebread, 2010). Both processes are important in pretend play; to pretend that the banana is a telephone and use it as such, for example, requires awareness and regulation of cognition (metacognition) and regulation of behavior to inhibit what she or he would do if it were a banana (self-regulation) (Whitebread, Coltman, Jameson, & Lander, 2009). The development of children's metacognitive and self-regulatory skills is critical in supporting them becoming self-regulated learners. Inhibiting reality to play in pretense helps children develop regulatory skills (Bodrova & Leong, 2003; Lillard, 1993, 2012), which enable them to voluntarily control their emotions, cognition, behavior to achieve a desired goal (Blair & Ursache, 2011; Whitebread et al., 2009; Whitebread & Sullivan, 2012). In addition, pretend play gives children the opportunity to

take different social roles that involve social meta-representations of the mental states of others and, hence, enables them to see the world through the eyes of others and regulate their own behaviors to accommodate different social situations and expectations (Bredenkamp, 2004; Lillard, 1993; Lillard et al., 2013).

As with the research on language development, there is a scarcity of research on how pretend play helps children become emotionally regulated, especially in low-income families. Studies have established a correlational link between socioeconomic status and children's regulatory behaviors, but there is less information about the ways in which the early home experiences, particularly pretend play, helps children self-regulate (Blair & Diamond, 2008; Evans & Rosenbaum, 2008). This is an important area of study because children from low-income families are at risk for developing low self-regulatory skills (Evans & English, 2002) and the development of such skills may promote resilience and may even protect them from the harmful effects of poverty on cognitive capacities.

Studies assessing playfulness are mostly descriptive and have reported significant correlations between parents' playfulness, variedly defined, and children's emotion regulation (Barnett & Kleiber, 1982; Elias & Berk, 2002; McEwen et al., 2007). A review of the literature has concluded that pretend play (i.e., play that promotes a playful attitude and the production of unusual ideas and creative problem-solving), help children to develop better language (e.g., learn and practice vocabulary) and narrative skills and to regulate their behavior and emotions (Lillard et al., 2013).

Are Mothers More Playful Than Are Fathers?

The continuing debate on how fathering is different from mothering and how the behavior of each parent influences children's development is rooted in cultural beliefs and biological perspectives on parenting (Bornstein & Cheah, 2006). Research that stresses similarities between parents has found that mothers and fathers engage in similar behaviors (e.g., encouraging exploration during play with their infants), which is often attributed to domain-specific cross-parent influences (see Anderson et al., 2013; Cabrera, Fitzgerald, Bradley, & Roggman, 2014). Further support for the similarity perspective comes from a review showing that the constructs of fathering and mothering are not unique in their role on children's development (Fagan, Day, Lamb, & Cabrera, 2014). That is, fathers' and mothers' parenting behaviors affect children's outcomes in similar ways, mostly because fathers and mothers are becoming more similar in terms of their roles and behaviors as well as the amount of time that they spend with children (Cabrera, Shannon, & Tamis-LeMonda, 2007; Fagan et al., 2014; Roggman, 2004).

Research that emphasizes differences between parents has noted that fathers are unique because they play different roles in the family and engage in domain-specific behaviors (Grusec & Davidov, 2010; Paquette, 2004). Biological differences in males and females as well as in reproductive investments are believed to have important implications for parenting behavior (Paquette, 2004). Fathers are more likely to tease their children, engage in rough-and-tumble play, and encourage risk-taking, and are less

sensitive than are mothers (Cabrera et al., 2014; Paquette, 2004). In contrast, mothers (more often than fathers) are engaged in certain forms of caregiving, spend much time in close proximity to children, and may encourage children to take into account the reactions of others during play (Craig, 2006; Roopnarine & Mounts, 1985). These findings are consistent with the view that parents have specific domains of influence, which are characterized by a specific form of social interaction, mechanisms, and outcomes (Grusec & Davidov, 2010).

A third perspective acknowledges both similarities *and* differences between parents, and argues that mothers and fathers complement each other and that there may be cross-parental influences. The behavior of each person can help strengthen or protect/compensate for the effects of the other (Cabrera et al., 2014). Flexibility and malleability within prescribed roles is critical; thus, fathers will sometimes enact roles played by mothers and vice versa in response to environmental conditions that require adaptation (e.g., both parents working, single-parent fathers) (Bronfenbrenner, 1986). This view is consistent with transactional models of human development; that there are multidirectional effects so that additive contributions to children's development are not the entire story (Fitzgerald & Bradley, 2012; Sameroff, 2010). Findings to support this view are emerging (e.g., Martin, Ryan, & Brooks-Gunn, 2010) and have suggested that models testing the interaction between mothers and fathers (i.e., cross-parental effects) might get us closer to the story than just additive models. In this study, we test the interaction between mothers' and fathers' playfulness.

If we endorse a complementary perspective of parents' behaviors, we might argue that both parents are capable of rough-and-tumble play and of caregiving, but that each parent might engage in these behaviors in a different way—either quantitatively or qualitatively different. Aside from the research on rough-and-tumble play that mostly is on fathers, there is little information on the degree to which mothers and fathers are playful, especially in low-income families. One small-scale study with a middle-class sample has examined the type of parents' play (e.g., pretend, physical, functional, instructive, and other) and tested whether there were differences in the type of play that mothers and fathers engage in with their toddlers (Lindsey, Mize, & Pettit, 1997). They found that fathers engaged in more physical play while mothers engaged in more pretend play. Moreover, children were more playful (defined as initiating play activities in a way that suggests excitement and engagement in the activity) with their fathers than with their mothers (Lindsey et al., 1997). These results suggest that fathers may be more playful during pretend play with their children, although it is unclear whether gender differences in parents' playfulness are associated with developmental outcomes concurrently or longitudinally.

Moderation by Child Affect

Child affect may change the strength of the association between parents' playfulness and children's outcomes because emotions are considered to be powerful intra- and interpersonal regulators of

behavior (Denham et al., 2012). The emotional climate of the family has been argued to be an important moderator of the link between parenting behaviors and children's emotion regulation (Sheffield, Silk, Steinberg, Myers, & Robinson, 2007). Child positive affect is related to many forms of adaptive functioning, including social competence, creative thinking, and self-regulation (Lengua, 2003). However, little empirical data exist on how children influence parenting behaviors (Lagacé-Séguin & D'Entremont, 2006). The few studies testing this hypothesis have offered tentative evidence (MacDonald & Parke, 1984). In a small-scale study of kindergarten-age children, Isley, O'Neil, Clatfelter, and Parke (1999) found that the association between mothers' and fathers' affect and their children's social competence was moderated by children's positive affect. That is, the association between parents' affect and children's social competence (rated by peers and parents) was stronger when children expressed more positive affect toward their parents. Testing for moderation by child affect seems a reasonable approach because children who exhibit positive affect toward their parents are happier and better adjusted than are children who do not (Morris, Silk, Steinberg, & Robinson, 2007). However, most research examining child affect as moderator has included indices of adjustment in context of maternal psychopathology (for a review, see Davis & Suveg, 2014). Given the little evidence that child affect might moderate the strength of the association between playfulness and children's outcomes, we view this moderation analysis as exploratory.

CURRENT STUDY

In this study, we use data from the Early Head Start Research and Evaluation Project (EHSREP), a large sample of low-income, ethnic-minority mothers and fathers and their children in Early Head Start and Head Start across the United States (Love et al., 2005). We address gaps in the existing literature on parent-child play by first describing mothers' *and* fathers' degree of playfulness with their toddlers as well as toddlers' affective responses to mothers' and fathers' playfulness. We also test associations between mothers' and fathers' playfulness, toddlers' affective/emotional responses to playfulness, and children's language and emotion regulation at prekindergarten. Finally, we test whether children's affect moderates the association between parent's playfulness and children's outcomes. We hypothesize that mothers' and fathers' playfulness will be associated with children's longitudinal language and emotion-regulation skills, and that the association between mothers' playfulness and children's skills will be strengthened by fathers' playfulness (cross-parental hypothesis). That is, we expect children to have better language and emotion regulation when *both* parents are playful in toddlerhood than when only one parent is playful. We also hypothesize that the association between playfulness and children's development will depend on toddlers having a positive response (i.e., displaying positive affect) during parents' playfulness (i.e., moderation hypothesis).

METHODS

Data from this study come from the Father Involvement with Toddlers Substudy (FITS) of the EHSREP. Children participating in the FITS study were recruited from Early Head Start (EHS) sites across the United States (for additional information on recruitment and study characteristics, see Boller et al., 2006). All participating families in both studies were eligible for EHS services based on family income (at or below the federal poverty level), as EHS is a federal program that provides services for low-income families (see Administration for Children and Families, 2002). From the FITS sample, we selected a subsample of families with available videotaped mother–child and father–child observational data at 24 months and child assessment data at prekindergarten. In general, families who participated in the FITS were more likely to report higher household incomes than were families in the larger EHSREP sample (see Cabrera et al., 2004; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004; for more detailed analysis of selection bias, see Mitchell & Cabrera, 2009).

Participants

Participants were 73 children ($n = 40$; 55% female) and their mothers and fathers. Toddlers were predominantly African American (48%, $n = 35$) and Latino (26%, $n = 19$). At the 24-month data-collection, children were, on average, 25 months of age ($SD = 1.45$). At the prekindergarten data collection, children were 62 months of age, on average ($SD = 4.35$). All mothers and most fathers (64%, $n = 47$) resided with their children at 24 months. Just over half of mothers (52%, $n = 38$) and less than half of fathers had at least a high-school or an equivalent degree (41%, $n = 30$). Most mothers (63%) and fathers (82%) were working at least part-time. The majority (78%) of families reported a primary home language of English. On average, families reported an annual income of approximately \$45,000 ($SD = \$26,828.14$). Most focal children (63%, $n = 46$) were the firstborn child in their families.

Procedures

Data collection included child assessments at prekindergarten, mother and father interviews at 24 months and prekindergarten, and home visits at 24 months during which videotaped observations of mother–child and father–child interactions were obtained. All interviews, videotaped interactions, and child assessments were completed in the family's primary language. Mothers, fathers, and their toddlers were videotaped engaging in three activities, including 10 min of semistructured free play, which was the focus of the present investigation. During free play, parents were presented with three separate bags. The first bag contained a book, and the second and third bags contained toys. All toys were designed to be age-appropriate and stimulate talk and play between parents and their children. Each parent was asked to sit on a mat with his or her child, to try to ignore the camera, and to do whatever felt most natural. Parents were instructed to only play with the toys from the

three bags and to start with Bag 1, move on to Bag 2, and finish with Bag 3. They were told that they could divide up the 10 min as they liked.

Measures

The measures for this study were selected for their psychometric properties and validity with low-income populations.

Dependent variables. Children's receptive vocabulary skills at prekindergarten in English were assessed at the prekindergarten data-collection wave using the Peabody Picture Vocabulary Test, Third Edition (Dunn & Dunn, 1997). Children were presented with a series of spoken words of increasing difficulty and asked to select a matching illustration for a specific word's meaning. Scores are based on the number of words that the child correctly identifies. Raw scores were converted to age-adjusted, standardized scores based on a national sample ($M = 100$, $SD = 15$). Scores in this analytic sample ranged from 51 to 126 ($M = 90.04$, $SD = 14.34$).

Children's emotion regulation. Children completed a series of protocol-defined tasks using the Leiter International Performance Scale, Social-Emotional Rating Scale, Revised (Leiter-R; Roid & Miller, 1997). The Social-Emotional Examiner Rating Scale gathers information about the individual's attention, organization skills, impulse control, activity level, anxiety, energy and feelings, mood regulation, sociability, and sensory reactivity. The Leiter-R was developed to assess cross-cultural intellectual function in children with limited verbal abilities, but also includes a subtest that measures children's emotion regulation. Trained EHSREP assessors assessed *emotion regulation* at the end of the child assessment (for further details, see Boller et al., 2006). Assessors rated children's energy and feelings, mood and regulation, and sensory reactivity. Individual items were rated on a scale of 0 (*rarely/never occurred; i.e., less than roughly 10% of the time*) to 3 (*usually/always occurred; i.e., more than 90% of the time*). These subscales were combined and scaled to form a measure of emotion regulation (Love et al., 2005). Higher emotion-regulation scores indicated lack of anxiety, greater levels of energy, positive emotion, appropriate self-regulation, and inattention. Emotion regulation scores ranged from 60 to 113 ($M = 92.30$, $SD = 7.74$).

Independent variables. Mother and father playfulness were coded using the Parental Playfulness Scale (Atzaba-Poria, Cabrera, Menashe, & Karberg 2014; see Appendix A). The scale is globally rated from 1 (*no playfulness*) to 7 (*high levels of creative play*). The scale captures the level of creativity, imagination, humor, and/or curiosity during play. Thus, a score of 1 means that the parents were not playful (no play, creativity, or interaction observed beyond short verbal directives) for the duration of the interaction; a score of 2 means that parents were low in playfulness, meaning they spent the majority of the time labeling objects (a form of interaction that is not playful, creative, or imaginative but may help the child

engage with the toys) and reading from the text of the book. A score of 3 indicates that parents used the toys provided in a conventional way (e.g., modeled how to cut the pizza or stir a pot) and gave commands about how to play, but did not spend a lot of time pretending with the toys (e.g., commenting on how yummy the food in the pot is). A score of 4 indicates that half of the interaction is spent in concrete play, and the other half is spent in imaginary play in which the toy is used according to its function (e.g., using a cooking set to play cook). A score of 5 indicates that the interaction mostly consists of imaginary play, with little creative play (i.e., where the toy is used in an unconventional way). A score of 6 indicates that most of the interaction is spent engaging in imaginary play (e.g., eating a plastic fruit), with some creative play (e.g., using a cooking pot as a hat or the pizza as a flying saucer). A score of 7, the highest score, means that parents displayed high levels of creative play, spending most of the interaction using the toys in an unconventional way, with high levels of creativity evident in the interaction. This often manifested as using the cooking toys as drums, hats, or in ways that represented other objects or pretending the arc or farm is a spaceship flying through space filled with aliens instead of farm animals. Two trained researchers jointly coded 20% of the videos and achieved acceptable interrater reliability ($\kappa = .84$). In the analytic sample, observed mother playfulness ranged from 1 to 6 ($M = 3.86$, $SD = 1.13$); that is, no mothers received a score of 7, and father playfulness ranged from 1 to 7 ($M = 3.76$, $SD = 1.14$). This measure has been used in other studies, indicating excellent interrater coefficient (see Menashe & Atzaba-Poria, this issue).

Child affect with mother and father was coded from the videotaped mother–child and father–child free-play interactions using the Parent-Child Interaction System (PARCHISY; Deater-Deckard, Pylas, & Petrill, 1997). The PARCHISY scale is a system of 18 macrocodes that assesses parent and child behaviors, affect, and attention. The codes tap the frequency as well as the intensity of each of the 18 behaviors. This study used the child positive affect coding scheme of 1 (*no positive affect displayed*) to 7 (*constant positive affect; child is smiling and laughing throughout the task*). Two research assistants were trained on the coding scheme and achieved high interrater reliability on 20% of the videos ($\kappa = .92$). Children's positive affect with their mothers and fathers ranged from 3 to 7 ($M = 5.74$, $SD = .96$ and $M = 5.79$, $SD = .94$, respectively).

Control variables. Due to the sample size and concerns about power, we controlled for only one variable in our models. To isolate the influence of mothers' and fathers' playfulness on children's skills, we controlled for mothers' and fathers' supportiveness, which was coded using the Positive Content and Supportiveness codes from the PARCHISY (Deater-Deckard et al., 1997). In our study, parental supportiveness is a composite of the mother and father supportiveness and the mother and father positive content codes. Supportiveness codes ranged from 1 (*never responds; ignores child's comments, questions, and behaviors*) to 7 (*always responds immediately to child; expands on comments made by child*). Positive content codes ranged from 1 (*no use of praise,*

explanation, and open-ended questions) to 7 (*exclusive use of explanation, questioning, and praise*). Higher scores indicated more positive and supportive interactions. Two graduate students were trained on the coding scheme and achieved acceptable interrater reliability on 20% of the videos ($\kappa = .86$). In this analytic sample, the supportiveness composite variable ranged from 9 to 27 ($M = 21.02$, $SD = 3.18$, $\alpha = .87$) of a possible range of 4 to 28. We used supportiveness instead of education or income because it is more proximal to the child (e.g., we expect socioeconomic status to influence children's skills through direct parent–child interactions). Moreover, it helps us isolate *playfulness* from other indicators of parenting quality observed during the play interaction.

Analytic Plan

To test our research question, we conducted a series of descriptive, bivariate correlations, and multiple regression analyses. All analyses were conducted in SPSS Version 23. Descriptive statistics (i.e., M , SD , and range) for key study variables and sociodemographic variables, including mother education, father education, and household income, are reported in Table 1. Bivariate correlations were conducted among sociodemographic variables and key study variables (see Table 2). Multiple regression analyses were conducted to test the study's RQ2 and RQ3 (see Table 3). Each multiple regression analysis used a hierarchical procedure and included mean-centered variables (i.e., each variable's mean was subtracted from the raw score to create variables with a mean of 0) to reduce possible multicollinearity within the models. In line with statistical convention, a p value of .05 was used as a cutoff to determine overall model and individual β significance.

RESULTS

RQ1: Are There Differences in Playfulness (i.e., the degree to which play is creative and imaginative) Between Mothers and Fathers?

We conducted a paired samples t test to compare the mothers' and fathers' playfulness during their 10-min interactions with their toddlers. On average, mothers were not more significantly playful ($M = 3.86$, $SD = 1.13$) than were fathers ($M = 3.76$, $SD = 1.14$, $p = .57$). Both parents spent about half of the interaction engaged in concrete play (e.g., labeling animals or placing them within the toy house and boat) and half of the time in imaginary play (e.g., pretending to cook or noting how hot the stove is). Mothers' playfulness was only correlated with her supportiveness, $r = .49$, and the child's affect during play with the mother, $r = .29$. In contrast, fathers' playfulness also was correlated with his supportiveness, $r = .36$; child's affect during play with the father, $r = .28$; mothers' education, $r = .29$; fathers' education, $r = .36$; family income, $r = .40$; and, father's residence, $r = .32$.

TABLE 1. Descriptive Statistics on Key Study Variables

	<i>M/%</i>	<i>SD</i>	Range
Dependent Variables			
Child's Receptive Vocabulary Skills	90.04	14.34	51–126
Child's Emotion-Regulation Skills	92.30	7.74	60–113
Independent Variables			
Playfulness			
Mother Playfulness	3.86	1.13	1–6
Father Playfulness	3.76	1.14	1–7
Moderating Variables			
Child Affect			
Child's Affect With Mother	5.74	.96	3–7
Child's Affect With Father	5.79	.94	3–7
Control Variable			
Supportiveness	21.02	3.18	9–27
Sociodemographic Variables			
Child Race/Ethnicity			
Child Is African American	48%		
Child Is Hispanic	19%		
Child Is a Girl	55%		
Child Age			
Child Age at Videotaped Interaction	25.13	1.45	22.9–28.4
Child Age at Assessment	61.90	4.35	51–72
Home Language Is English	78%		
Firstborn Child	63%		
Parent Employment			
Mother Employment	63%		
Father Employment	82%		
Resident Father	64%		
Education			
Mother Has < High-School Education	48%		
Mother Has High-School Diploma, No More	25%		
Mother Has Some College	27%		
Father Has < High-School Education	59%		
Father Has High-School Diploma, No More	16%		
Father Has Some College	25%		
Family Annual Income	45021.86	26828.14	2,688.29–135,177.92

RQ2: Are Mothers' and Fathers' Playfulness at 24 Months Associated With Children's Receptive Vocabulary and Emotion Regulation at Prekindergarten?

We first examined the bivariate associations among mothers' and fathers' playfulness and children's vocabulary and emotion regulation (see Table 2). Mothers' playfulness was associated with children's emotion regulation, $r = .44$, $p < .01$, and fathers' playfulness was associated with children's vocabulary, $r = .32$, $p < .01$, and emotion regulation, $r = .25$, $p < .05$.

Next, we conducted two multiple regression analyses (see Table 3), Model 1 predicting children's vocabulary skills and

Model 2 predicting children's emotion regulation. These multiple regression models both examined the unique contribution of mother and father playfulness, over and above parental supportiveness, to children's outcomes. Model 1 accounted for 19% of the variance in children's vocabulary skills, $R^2 = .19$, $F(3, 69) = 5.35$, $p < .01$. There was a positive longitudinal association between fathers' playfulness and children's prekindergarten vocabulary, $\beta = .23$, $t(69) = 2.02$, $p = .048$. Model 2 explained 22% of the variance in children's prekindergarten emotion regulation, $R^2 = .22$, $F(3, 69) = 6.60$, $p < .01$, and revealed a positive longitudinal association between maternal playfulness and children's prekindergarten emotion regulation, $\beta = .43$, $t(69) = 3.53$, $p = .001$.

RQ3: Are There Cross-Parental Effects Between Mothers' and Fathers' Playfulness on Children's Outcomes at Prekindergarten?

We conducted a series of multiple regressions predicting children's prekindergarten vocabulary (Model 3) and emotion regulation (Model 4). Model 3 explained 24% of the variance in children's prekindergarten vocabulary, $R^2 = .24$, $F(4, 68) = 5.39$, $p < .01$. Over and above parental supportiveness, the association between maternal playfulness and children's vocabulary at prekindergarten was significant only when fathers were highly playful, $\beta = .25$, $t(68) = 2.16$, $p = .034$ (see Figure 1). Model 4 explained 25% of the variance in children's emotion regulation, $R^2 = .25$, $F(4, 68) = 5.76$, $p < .001$. Over and above supportiveness, the association between mothers' playfulness and children's emotion regulation was not strengthened by fathers' playfulness, $p = .10$.

RQ4: Are the Associations Between Mothers' Playfulness and Children's Vocabulary, and Emotion Regulation Moderated by Children's Affect While Engaging With Their Mothers?

We conducted a series of multiple regressions predicting children's vocabulary (Model 5) and emotion regulation (Model 6). Model 5 accounted for 15% of the variance in children's prekindergarten vocabulary, $R^2 = .15$, $F(5, 67) = 1.99$, $p < .10$. Over and above supportiveness and playfulness, the association between mothers' playfulness and children's vocabulary was not moderated by children's affect with their mother, $p = .74$. Model 6 explained 30% of the variance in children's prekindergarten emotion regulation, $R^2 = .30$, $F(5, 67) = 4.82$, $p < .01$. Over and above supportiveness, the association between mothers' playfulness and children's emotion regulation was strengthened when children were more affectively positive with their mothers during play, $\beta = .30$, $t(67) = 2.39$, $p = .02$ (see Figure 2).

RQ5: Are the Associations Between Father Playfulness and Children's Vocabulary and Emotion Regulation Moderated by Children's Affect While Engaging With Their Fathers?

We conducted a series of multiple regressions predicting children's vocabulary (Model 7) and emotion regulation (Model 8). Model

TABLE 2. Correlations Among Key Study Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Receptive Vocabulary	1											
2. Emotion Regulation	.14	1										
3. Mother Playfulness	.02	.44**	1									
4. Father Playfulness	.32**	.25*	.20	1								
5. Supportiveness	.34**	.23>†	.49**	.36**	1							
6. Child Affect With Mother	.09	.00	.29*	-.03	.39**	1						
7. Child Affect With Father	.28*	-.05	-.01	.28*	.30**	.22>†	1					
8. Mother Education	.12	-.05	.21	.29*	.13	.02	.06	1				
9. Father Education	.02	-.02	.04	.36**	-.17	.05	.15	.45**	1			
10. Child Is a Girl	-.09	-.05	-.06	-.23†	-.09	-.09	-.18	-.06	.04	1		
11. Family Income	.16	.16	.16	.40**		-.07	.20†	-.01	1			
12. Resident Father	-.01	.05	-.03	-.32**	-.14	.09	.04	-.14	-.08	.16	.28*	1

†*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

TABLE 3. Multiple Regression Analyses

	Model 1 Receptive Vocabulary			Model 2 Emotion Regulation		
	<i>B</i>	(<i>SE</i>)	β	<i>B</i>	(<i>SE</i>)	β
Direct Associations						
Supportiveness	1.58	.59	.35**	-.11	.31	-.04
Mother Playfulness	-2.44	1.57	-.19	2.93	.83	.43**
Father Playfulness	2.95	1.46	.23*	1.20	.77	.18
	Model 3 Receptive Vocabulary			Model 4 Emotion Regulation		
	<i>B</i>	(<i>SE</i>)	β	<i>B</i>	(<i>SE</i>)	β
Moderation by Father Playfulness						
Supportiveness	2.02	.61	.45**	.08	.33	.03
Mother Playfulness	-2.35	1.53	-.19	2.96	.82	.43**
Father Playfulness	2.88	1.43	.23*	1.17	.76	.17
Mother Playfulness × Father Playfulness	2.41	1.12	.25*	.98	.60	.19
	Model 5 Receptive Vocabulary			Model 6 Emotion Regulation		
	<i>B</i>	(<i>SE</i>)	β	<i>B</i>	(<i>SE</i>)	β
Moderation by Child Affect With Mother						
Supportiveness	1.17	.74	.26	.05	.31	.03
Mother Playfulness	-1.94	2.09	-.15	1.57	.89	.26†
Father Playfulness	2.92	1.69	.24†	1.71	.72	.29*
Child Affect With Mother	.48	2.08	.03	-.32	.89	-.04
Mother Playfulness × Child Affect With Mother	-.76	2.24	-.05	2.27	.95	.30**
	Model 7 Receptive Vocabulary			Model 8 Emotion Regulation		
	<i>B</i>	(<i>SE</i>)	β	<i>B</i>	(<i>SE</i>)	β
Moderation by Child Affect With Father						
Supportiveness	1.70	.63	.38**	.05	.34	.02
Mother Playfulness	-2.77	1.62	-.22†	2.63	.87	.39**
Father Playfulness	2.64	1.57	.21†	1.33	.79	.20†
Child Affect With Father	.71	1.91	.05	-1.09	1.03	-.13
Father Playfulness × Child Affect With Father	2.61	1.52	.20†	-.54	.82	-.09

†*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

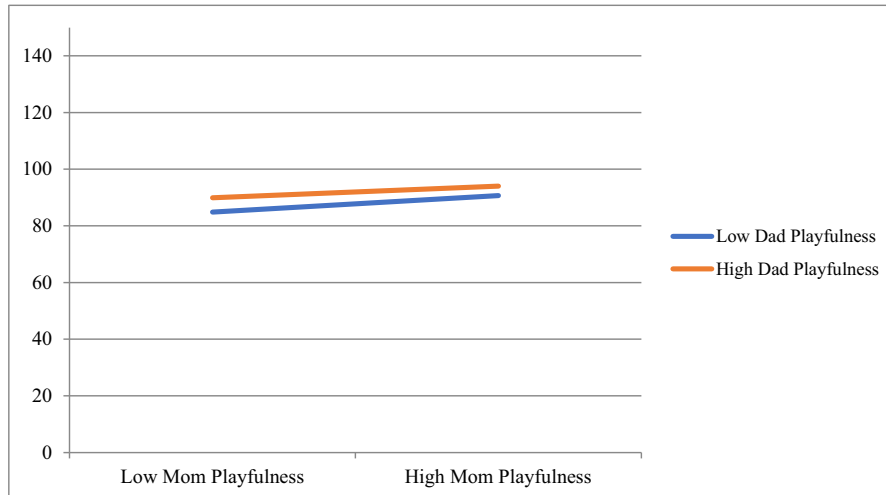


FIGURE 1. Interaction of mother and father playfulness predicting children's prekindergarten receptive vocabulary (Model 3).

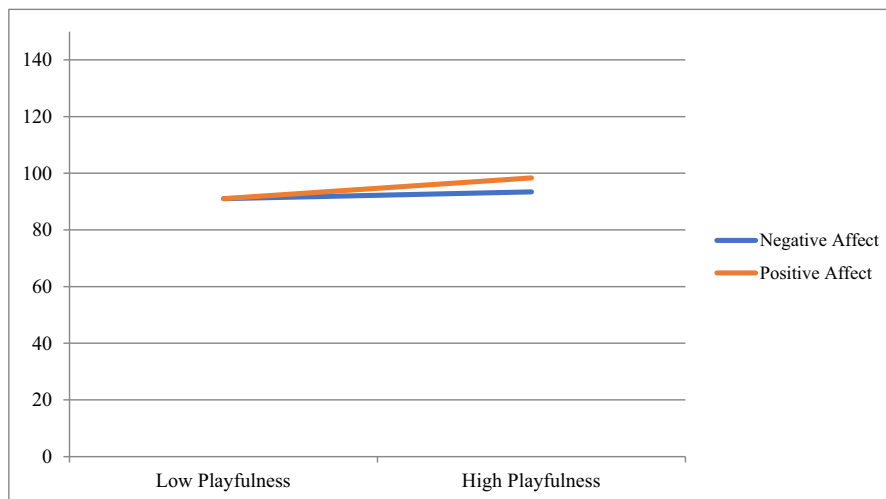


FIGURE 2. Interaction of mother playfulness and child affect, with mother predicting children's prekindergarten emotion regulation (Model 6).

7 explained 24% of the variance in children's prekindergarten vocabulary, $R^2 = .24$, $F(5, 67) = 4.15$, $p < .01$. Over and above supportiveness, the association between fathers' playfulness and children's vocabulary was not strengthened when child affect was positive, $\beta = .20$, $t(67) = 1.72$, $p = .09$. Model 8 accounted for 24% of the variance in children's emotion regulation, $R^2 = .24$, $F(5, 67) = 4.18$, $p < .01$. Over and above supportiveness, fathers' playfulness and children's emotion regulation was not strengthened when children's affect was positive, $p > .05$.

DISCUSSION

The primary goal of this study was to explore the longitudinal associations between mothers' and fathers' playfulness during toddlerhood and children's vocabulary and emotion regulation skills at prekindergarten. This is one of the first studies to examine the *quality* of the play that low-income mothers and fathers engage with their young children. Understanding the ways in

which low-income parents contribute to their children's development through play offers timely information for programs whose goal is to promote language and emotion-regulation competence among children growing up in economic disadvantage (e.g., Elias & Berk, 2002).

Our first goal was to explore whether mothers and fathers differed in how playful they were in interactions with their toddlers during a free-play task. We found that both mothers and fathers were equally playful; that is, they did not differ in the degree to which they showed creativity, imagination, or curiosity during play (John, Halliburton, & Humphrey, 2013). This finding stands in contrast to other findings that have found differences between parents in the saliency of play, more for fathers than for mothers (Paquette, 2004; Roggman, 2004). Thus, our finding adds to the literature by providing evidence that mothers and fathers can be equally playful, creative, and fun in the way that we have assessed in this study. Of course, this finding should be examined with different sociodemographic samples.

However, we also found that parent's sociodemographic characteristics were differentially related to mothers' and fathers' playfulness. Fathers' income and education and mothers' education were associated with his playfulness whereas neither mothers' nor fathers' characteristics were associated with mothers' playfulness. This finding suggests that fathers' playfulness is more susceptible to contextual factors and may be more fluid over time. This finding is consistent with research suggesting that fathering (involvement, the quality of his interactions with their child) is more dependent on context (e.g., marital conflict) than is mothering (Cabrera et al., 2014).

Our second goal was to test whether mothers' and fathers' playfulness, above the influence of parental supportiveness, were associated with children's receptive vocabulary. Bivariate correlations reveal that mothers' and fathers' playfulness is a different construct from parental supportiveness; that is, playful parents, in the way that we have measured in this study, are not necessarily supportive parents. Our findings partially support our hypothesis. We found that playfulness was related to children's receptive vocabulary at prekindergarten for fathers, but not for mothers. Overall, this finding is consistent with Vygotsky's writings that through pretend play with parents, children hear more words and more novel uses for words that challenge their understanding of meaning and abstract thought, which benefits their vocabulary development (Nagy & Scott, 2000). However, it is less clear why this effect was not found for mothers. One possible explanation is that during play fathers may be more linguistically challenging, exposing their children not only to more words but also to higher quality vocabulary (Weisleder & Fernald, 2013). Indeed, several studies with low-income families have found that fathers' linguistic input during father-child interactions is of higher quality than that of mothers (Malin et al., 2012; Pancsofar & Feagan-Vernon, 2010; Rowe, Coker, & Pan, 2004). In other words, fathers may be using more words and more complex grammar during the play interactions than are mothers. This finding suggests that future studies should not only measure the quality of play but also the quality of the language spoken during pretend play.

We also tested whether parents' playfulness was related to emotion regulation at prekindergarten; here, the findings are more mixed (Blair & Ursache, 2011). Mothers (but not fathers) who were more playful had children with higher emotion-regulation skills than did mothers who were less playful. Scholars have speculated that perhaps highly playful mothers (i.e., creative and fun) give children the opportunity to take on a different social role that requires social meta-representations of the mental states of others, giving them a different lens to see the world and hence voluntarily regulate their own behavior (Bergen, 2002).

The puzzling piece in this study is that this was not the case for fathers, even though they were just as playful as mothers. One possible explanation might be that fathers' playfulness, as measured in this study, might not promote regulatory behaviors in children because it does not excite children enough to require an inhibitory response (Paquette, 2004). For example, studies of paternal rough-and-tumble play have shown that it promotes

self-regulation because it excites children and pushes boundaries where fathers can help them regulate their emotional responses (Fletcher, StGeorge, & Freeman, 2013). If fathers can help children regulate their emotions only in a destabilizing context (e.g., rough-and-tumble play or play that is highly physical), then one would expect play that is not physical to have little effect on emotion regulation, as we have found in this study (Paquette, 2004). This line of thinking, however, does not explain why mothers in the same context of playfulness promote children's regulatory behaviors. Does this suggest that mothers do not need to excite their children to help them self-regulate? Alternatively, does it suggest that there is specificity of mothers' and fathers' behaviors so that the same behavior (e.g., playfulness) has differential impact on children depending on the gender of the parent? This line of thinking merits further investigation. To our knowledge, there are no studies of the effects of maternal rough-and-tumble play on children's regulatory behaviors.

The next question of interest was to examine cross-parental effects (tested as moderation): Is mothers' playfulness strengthened by fathers' playfulness? We found evidence of a cross-parental effect of fathers' playfulness; of a compensatory nature. Mothers' playfulness was associated with children's receptive vocabulary at prekindergarten only when fathers also were highly playful. This finding is in line with recent research showing that fathers' influence on children's development might be compensatory or protective (Lewin, Mitchell, Burrell, Beers, & Duggan, 2011). For language, fathers' playfulness protects children from the lack of influence that mothers' playfulness has on their language skills. In contrast for children's emotion regulation, having two playful parents was not more beneficial than having one such parent. The association between mothers' playfulness and children's emotion regulation did not change by having highly playful fathers. In other words, mothers' playfulness did not compensate for the lack of influence that fathers' playfulness had on children's emotion regulation. The joint effects of maternal and paternal playfulness on children's language and emotion regulation suggest that for some domains of development, such as emotion regulation, one parent might be enough (Ryan, Martin, & Brooks-Gunn, 2006).

The way in which children actively contribute to their own development in the context of play interactions with parents remains largely unexplored in the literature. In this study, we addressed this gap by examining the shared affect between children and parents during play. We advanced this area of research by testing whether the association between mothers' and fathers' playfulness and children's skills were moderated by children's affect during play. Our hypothesis was partially supported. We found evidence of a strengthening effect for emotion regulation; when toddlers responded positively to playfulness from their mothers, they had better regulatory skills than when they did not. However, children's affective response did not significantly modify fathers' behaviors. It is possible that fathers are less attuned to children's affective responses, dominating the play interaction so that children's responses are less important for their own behaviors (Paquette, 2004). Again, context such as shared affect seems to matter for mothers,

but not for fathers, suggesting further specificity of influence. This is another fruitful area for future research.

There are several limitations to this study. Our sample was small and select, given the difficulty recruiting low-income and ethnic-minority mothers *and* fathers to participate in an observational study. Thus, our findings do not generalize to low-income and ethnic-minority families in general. Future studies should examine whether mothers' and fathers' playfulness differ in terms of language quality and whether it predicts other aspects of development. Children's receptive vocabularies were tested only in English, despite some children growing up in homes where a language other than English was spoken. In the future, studies should conceptually score children's vocabulary skills to account for their vocabulary knowledge in multiple languages. Our coding scheme needs to be used in other studies to establish further validity. Finally, due to power limitations, many statistical models were tested in this study, increasing the risk of Type I error. Future studies, with a larger sample size, should simultaneously test these associations.

Despite the aforementioned limitations, this study makes a significant contribution to the field in several ways. It is longitudinal in nature, and utilizes rich observational data and a novel coding system to capture the quality and nature of mothers' and fathers' playfulness, a topic that is understudied especially in low-income families. This study adds to the growing body of work on how *both* mothers and fathers contribute to children's development and, by focusing on playfulness, points to another way to improve parenting behaviors in low-income populations.

We provide evidence for domain-specific ways through which both parents' promoted their children's receptive vocabulary and self-regulation jointly (interactions) and independently. Both mothers and fathers in our sample exhibited playfulness with their toddlers, which promotes receptive vocabulary (fathers) and regulatory skills (mothers). We also showed that two playful parents are better for some aspects of development, such as children's vocabulary skills, but for emotion regulation, only one parent might be enough. Overall, our findings (a) highlight domain-specific ways that mothers and fathers promote children's positive development and (b) show parental joint effects that promote their children's positive development. Considering that play is a universal activity that is low-cost and accessible to diverse families, including families with a nonresidential parent, our findings suggest that interventions targeted to low-income parents should include ways to promote high-quality play between parents and children as a cost-effective and enjoyable way to support their children's development in the early years.

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APPENDIX

The Parental Playfulness Scale (Atzaba-Poria, Cabrera, Menashe, & Karberg, 2014)

Playfulness definition: spontaneous physical, cognitive, and social behavior that expresses joy, humor, curiosity, imagination, and creativity

Global Descriptors of Playfulness	Score
No playfulness. No concrete play, no imaginary play, no creative play. Mainly labeling (e.g., “That is a car.”) and commands (e.g., “Do that.”).	1
Low playfulness. Parent spends majority of time naming objects, tagging, reading text of the book. A few instances of concrete play.	2
Concrete/structured play. Using the game in a conventional way (e.g., “A stove is for cooking.”). Give commands about how to play with toys (e.g., “Cut the pizza and put it on the plate.”).	3
Half the time on concrete/structured play and half on imaginary play (e.g., imaginary use of the toy according to its function).	4
Majority of play is imaginary play. Main difference between 4 and 5 is the time.	5
Most of the time is imaginary play (e.g., drinking from a plastic cup, eating a plastic fruit), but there also is some creative play (e.g., using a toy in an unconventional way). Difference between 5 and 6 is that in 6 the parent adds creative play.	6
High levels of creative play (pretending, imaginary use of the toy in an unconventional way).	7