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Nonstandard Work Schedules, Family Dynamics, and Mother–Child Interactions During Early Childhood

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Abstract

The rising number of parents who work nonstandard schedules has led to a growing body of research concerned with what this trend means for children. The negative outcomes for children of parents who work nonstandard schedules are thought to arise from the disruptions these schedules place on family life, and thus, the types of parenting that support their children's development, particularly when children are young. Using a nationally representative sample of two-parent families (Early Childhood Longitudinal Study–Birth cohort, $n = 3,650$), this study examined whether mothers' and their partners' nonstandard work schedules were associated with mothers' parenting when children were 2 and 4 years old. Structural equation models revealed that mothers' and their partners' nonstandard work schedules were associated with mothers' lower scores on measures of positive and involved parenting. These associations were mediated by fathers' lower levels of participation in cognitively supportive parenting and greater imbalance in cognitively supportive tasks conducted by mothers versus fathers.

Keywords

family processes; mother–child relationship; parent/child relations; quantitative; work and family

The emergence and persistence of a diverse and unstable labor market has been a major feature of the economy in the past half century. In particular, the growth of the service sector, which is disproportionately occupied by women, has increased the demand for services during nondaytime hours while technological change has reduced the costs of labor, allowing for work around the clock (Presser, 2003). In the United States, approximately one third of dual-earner families include a parent who works a nonstandard schedule (i.e., outside 8 a.m.–6 p.m. hours; Presser & Ward, 2011). This employment trend, like others that have transformed family life, such as the rise of maternal employment, has generated a great deal of research on what it means for children (Bianchi & Milkie, 2010). For the most part, research has shown that non-standard schedules among mothers are associated with lower cognitive development, academic achievement, socioemotional adjustment, and health among children (Johnson, Kalil, & Dunifon, 2012; Li et al., 2014).

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A hypothesized yet underexplored pathway connecting mothers' nonstandard work to children's outcomes is through their parenting behavior. The implicit and explicit assumption of this literature is that nonstandard work schedules disrupt the ways mothers engage in stimulating and sensitive parenting behaviors that we know directly affects children's development, such as their cognitive and socioemotional outcomes (Presser, 2003). What is it about nonstandard work that would lead to such developmentally consequential changes in parenting? For some parents, nonstandard work imposes an unpredictable time constraint that is difficult to manage physically and emotionally. Some see it as taking away time with children while others see it as protecting that time. For others, the distance it puts between spouses is intolerable, and for others, it is a worthy sacrifice, albeit one which carries stresses for coparenting (Han, 2004; Hattery, 2001; Täht & Mills, 2011). Adjudicating among these intrafamily mechanisms linking parents' nonstandard schedules to their parenting behavior is a crucial component of understanding how the rise of the 24/7 economy has been good or bad for U.S. children.

This study, therefore, draws on the family systems perspective—emphasizing the importance of the interconnectedness among family members and certain relationships within families (Cox & Paley, 1997)—to examine how partnered mothers' engagement in stimulating and sensitive parenting with children is associated with their experiences employed in jobs that require working nonstandard schedules (i.e., those outside the 8 a.m.-6 p.m. daytime hours) as well as their partners' experiences in such jobs. I then explore how changes in the shared, negotiated, and interactive dynamics between mothers and their partners (e.g., relationship stress, family routines, paternal parenting support of mothers, arrangements for child care) explain these links between nonstandard work and mothers' engagement in developmentally significant parenting. These aims will be pursued by applying cross-lagged structural equation models (SEM) to the Early Childhood Longitudinal Study–Birth cohort (ECLS-B)—a nationally representative sample of children born in the United States in 2001—examining observational measures of maternal parenting when children are 2 and 4 years old. The importance of this line of research lies in the fact that diverse work schedules are becoming an increasingly frequent experience in the United States, particularly among low-income families most often targeted by social policy. The potential contribution is strengthened by focusing on parenting when children are young. Early childhood is an incredibly malleable developmental period in which changes in parenting—and, therefore, the external systems that lead to these changes—can have outsized effects on lifelong development (Heckman, 2006; Raby, Roisman, Fraley, & Simpson, 2015).

Overview of the Significance of Maternal Nonstandard Work Schedules

Nonstandard work schedules generally refer to work schedules conducted regularly outside of daytime hours (e.g., 8 a.m.-6 p.m.), such as schedules that require work in the evenings or throughout the night (Presser, 2003). Although nonstandard work schedules are prevalent in a range of occupations and industries, they are generally most common in service and blue-collar sectors with below-average wage (Enchautegui, 2013). As is the case with so many work–family topics, the growing research base on nonstandard work has tended to focus on the implications of *mothers'* nonstandard work for *children's* well-being. The evidence is clear that mothers' nonstandard work—net of other negative dimensions often characteristic

of nonstandard schedules (e.g., low pay, instability)—is associated with poorer outcomes for children in a wide variety of domains, particularly those concerning the development of early cognitive skills that matter for educational attainment in the long run (Li et al., 2014).

Nonstandard Work Schedules and Mothers' Parenting

Efforts to explain this disadvantageous link between mothers' nonstandard work and children's developmental outcomes have typically focused on parenting, particularly the potential for such work to disrupt mothers' engagement in sensitive and stimulating behaviors. The first aim of this study, then, is to test the hypothesis that mothers' nonstandard schedules will be associated with less engagement in sensitive, responsive, and positive behaviors thought to typify high-quality parenting in early childhood. The conceptualization of this parenting mechanism is that nonstandard work creates stress, taxes time, and disrupts routines in such a way that mothers are not able to follow through on their best parenting intentions (Hsueh & Yoshikawa, 2007; Tuttle & Garr, 2012). Given how consistently this argument is made in the literature, it is surprisingly light on direct empirical evidence. Most assessments of the links between mothers' nonstandard work and parenting have relied on time-use data that count the amount of time mothers spend with children in various activities (Rapoport & Le Bourdais, 2008; Wight, Raley, & Bianchi, 2008). This evidence is mixed because nonstandard work scheduling can allow some parents to maximize time with their children even as it interferes with their general family routines, rituals, and activities (Täht & Mills, 2011). Following recent debates about the value of measuring the substance of parenting activities in addition to the time spent on such activities (Kalil & Mayer, 2015), this literature can be advanced by exploring the implications of mothers' nonstandard work for her engagement in specific dimensions of parenting known to have long-term effects on children's life courses (Kawabata, Alink, Tseng, van IJzendoorn, & Crick, 2011; Raby et al., 2015).

Indeed, although this study hypothesizes a negative association between nonstandard schedules and mothers' engaged parenting, I acknowledge that the opposite could be found—that is, that nonstandard or rotating schedules will be associated with a more engaged parenting style. In certain contexts, research has not found an association between nonstandard work schedules and family dynamics, such as in European countries with labor laws that place greater restrictions on what type of work is conducted during nonstandard hours and have greater social policy supports (Mills & Täht, 2010). Moreover, the agency parents have over whether to work nonstandard schedules matters (Kelly, Moen, & Tranby, 2011; Tuttle & Garr, 2012). Despite this, most research has found a negative association between nonstandard work and child outcomes (see Li et al., 2014, for a review), and hence, I base the following hypotheses on the assumption that—on the whole—nonstandard schedules create constraints for mothers' engaged parenting.

Embedding Nonstandard Work Schedules in the Family System

Family systems theory advocates examining the interconnections among various people and relationships within the family—how what is going on in one relationship can be better understood by examining what is going on in other relationships connected to it (Cox &

Paley, 1997). This perspective calls for new approaches to the study of nonstandard work, by, for example, paying attention to how it facilitates “tag-team parenting” in which parents desynchronize their work hours so that they can jointly manage the care of their young children in ways that go beyond the mother–child dyad (Hattery, 2001; Täht & Mills, 2011). This approach recognizes that studying mothers' nonstandard work and her parenting is incomplete without considering fathers. The second aim of this study, therefore, is to test the hypothesis that *fathers'* nonstandard schedules will be negatively associated with *mothers'* engagement in sensitive and stimulating parenting, although less so than mothers' own schedules.

As a starting point, a father's work schedule may matter to a mother's parenting beyond her own work schedule. The time constraints, instability, and stress nonstandard work imposes on a family occurs no matter who is working that schedule because of the importance of both parents to the management of home life. Just as a mother's ability to engage in sensitive and stimulating parenting may be disrupted by working outside daytime hours, it may also be disrupted when a father's nonstandard schedule interferes with his consistent input into child rearing and family functioning more generally. In other words, her schedule may directly constrain what she does in the way of parenting, but his schedule may indirectly constrain her by reducing help and assistance (Heinrich, 2014).

Mechanisms Linking Nonstandard Work Schedules to Mothers' Parenting

Besides expanding the scope of study to include fathers' nonstandard schedules as a potential component of mothers' parenting, family systems theory also points to the conceptualization of this link as channeled through the shared dynamics of mothers' and fathers' management of the family. By shared dynamics, I refer to how parents negotiate, interact with each other, and balance their tasks and responsibilities. More specifically, I focus on three aspects that could be complicated by mothers' and fathers' nonstandard schedules on one hand and disrupt mothers' parenting on the other.

First, *structural* family system factors refer to changes in family organization or contexts as a result of parents' negotiations around work, captured here by the quality and stability of child care settings that parents arrange to accommodate their work. For example, although two-parent families often state that they use nonstandard work schedules as strategy for balancing work and child care (Han, 2004), those who work alternative shifts are also at higher risk of using unstable, lower quality, and patchwork care arrangements (Han, 2004; Henly, Ananat, & Danziger, 2006). High-quality and consistent child care, in turn, has been found to be associated with mothers' greater parenting self-efficacy, sensitivity to children, and general quality of attachment to children (Burchinal, Campbell, Bryant, Wasik, & Ramey, 1997; Crosnoe, Augustine, & Huston, 2012; NICHD Early Child Care Research Network, 1999). In this way, parental work schedules could be associated with differences in maternal parenting through differences in the types of nonparental child care arrangements parents juggle while balancing their diverse schedules.

Second, *interpersonal* family system factors refer to changes in the quality and tone of the social psychological interactions between parents related to their respective schedules.

Nonstandard work is associated with increased risk of relationship conflict and stress (Barnett, Gareis, & Brennan, 2008; Maume & Sebastian, 2012) and less couple time for nurturing relationships (Hattery, 2001; Wight et al., 2008). These interpersonal factors are associated with increased stress and depression, psychological conditions that have been shown to affect maternal responsiveness and sensitivity (Lovejoy, Graczyk, O'Hare, & Neuman, 2000). In this way, relationship strain associated with nonstandard schedules in two-parent families, whether mothers or fathers or both are doing the nonstandard work, could be a mechanism linking such schedules to mothers' parenting.

Third, *parenting support* refers to the way nonstandard work schedules experienced by one or both parents create barriers to "family togetherness" and/or reduce equality in the division of parenting tasks. One oft-studied aspect of parenting support is regular family dinners, which are related to children's outcomes and are vulnerable to being disrupted by work conducted outside the standard 9-to-5 day (Hammons & Fiese, 2011; Presser, 2003). When nonstandard work interferes with family dinners, the inconsistency of routines and lack of regular family time may affect the way that mothers parent by increasing uncertainty and diminishing opportunities for face-to-face interaction (Hetherington, 1989; Mindell, Telofski, Wiegand, & Kurtz, 2009). Another aspect of parenting support is fathers' engagement in child-focused tasks. For example, fathers' nonstandard schedules could affect the time (e.g., because of work–family conflicts that interfere with bedtimes) that they can devote to certain tasks and also the quality of those tasks (e.g., reading books to children vs. watching television; Rosenbaum & Morett, 2009). Fathers' time investment in parenting can, in turn, affect the quality of mothers' parenting by changing the types of activities that she needs to do and by diminishing support of a consistent parenting style (Daly, 2004). In this way, the potential for nonstandard work schedules to disrupt family routines and to create imbalance in maternal–paternal inputs into household management and child rearing could help explain why mothers may be less stimulating with, and sensitive to, children when they and their partners work nonstandard schedules.

The third aim of this study, therefore, is to test the hypothesis that associations between mothers' and fathers' nonstandard work schedules on one hand and mothers' engagement in sensitive and stimulating parenting of young children on the other will be mediated by lower quality and more unstable child care, greater relationship conflict, and less family routine and paternal involvement in parenting-related tasks.

Taken together, these three aims extend the already rich literature on maternal nonstandard work schedules and child outcomes by focusing on the primary mechanism of this link—mothers' engagement in parenting practices clearly associated with children's lifelong development—and then using family systems theory to reorient the focus toward what fathers are doing at work and how mothers and fathers jointly manage family life. Importantly, this theoretically grounded approach can offer policy- and practitioner-relevant insights into how best to support these working families.

Method

Data and Sample

The ECLS-B is a nationally representative sample of children born in the United States in 2001. Following 10,600 children from birth, it was designed to help understand the early home and educational contexts that contribute to children's well-being. In-home interviews were conducted when children were 9 months, 2 years, 4 years, and 5 years old. For this study, I use the 9-month, 2-year, and 4-year waves, when detailed aspects of parenting were measured. The analytical sample included 3,650 children who were living with their mother and her male partner (predominately their biological fathers) at the 9-month, 2-year, and 4-year interview (excluding 4,400 children) and whose mothers participated in the home-based parenting assessments (excluding 1,450 children). A further 1,200 children were excluded due to attrition or not being interviewed at the 2-year and 4-year interviews. Longitudinal sampling weights within the ECLS-B accounted for oversampling of certain subpopulations. With these weights, this analytical sample is effectively representative of U.S. children born in 2001 living with two parents.

Measurement

Mothers' Stimulating and Sensitive Parenting—At the 2- and 4-year interviews—the two waves in which I examine parenting as an outcome—mother–child interactions were assessed through videotape of them completing the Two Bags Task, a modified version of the Three Boxes Procedure for examining patterns of parenting behaviors (Owen et al., 1993). This task involved mother and child reading a book (the activity in the first bag) and playing with Play-Doh and cookie cutters (the second bag activity) while trained coders scored their interactions on stimulating cognitive development, positive regard (at the 2-year wave only), sensitivity (at the 2-year wave only), and emotional support (at the 4-year wave only; all ranging from values of 1 = *very low* through 7 = *very high*). This study's scale of stimulating and sensitive parenting was created through latent factor analysis, with the sensitivity, positive regard, and stimulating cognitive development subscales at the 2-year interview and emotional support and stimulating cognitive development subscales at the 4-year interview identified as items that clustered together ($M = 4.44$, Cronbach's $\alpha = .81$ at 2-year wave and $.74$ at 4-year wave). Because of differences in the subscale variables used to create the parenting scale at each wave and differences in parenting associated with children's age-graded development, the scale was age-standardized into z scores.

In addition to observational measures of parenting measured at the 2- and 4-year interview, maternal parenting behavior at the 9-month interview was included as a control for baseline level of parenting in the 9-month work schedule to 2-year parenting outcome model. Because in-home observational assessments of parenting were not conducted at the 9-month interview, parenting at 9 months was measured as the average of mothers' reports of, in a typical week, reading to their child, telling them stories, and singing songs with them, ranging from 1 (*not at all*) through 4 (*every day*). This scale was also converted into an age-standardized z score.

Work Schedule—A series of dummy variables captured work schedules for both mothers and fathers at each wave. The seven groups were (a) full-time standard schedule; (b) part-time standard schedule; (c) full-time evening/ night schedule (i.e., nonstandard); (d) full-time rotating/split schedule; (e) part-time evening/night/rotating/split schedule; (f) unemployed, looking for work; and (g) not employed, not looking for work (homemakers). Full-time hours were considered 35 hours or more per week.

Family System Mediators—For structural mediators, I focused on several aspects of child care settings that parents arrange for their children. All mediators were measured at the 9-month and 2-year interviews. *Child care type* was captured by dummy variables indicating whether the child was in: (a) any nonrelative care (e.g., informal, home-based care); (b) any relative (non-parental) care; and/or (c) any center care (e.g., formal care). Although measures of quality were not available for all types of care, these measurements are associated with aspects of quality and stability, whereby formal settings are often of higher quality and offer more stability than other settings (Love et al., 2003). *Number of nonparental care arrangements* was a continuous variable measuring the number of different nonparental care arrangements the child was currently in, and the *number of hours in nonparental care* was a continuous measure.

For interpersonal mediators, I focused on aspects of mothers' relationships with their partners. *Relationship happiness* was a continuous scale ranging from 1 (*very happy*) through 3 (*not too happy*) reflecting mothers' response to the question “would you say that your marriage/relationship is. . .” *Frequency of arguments* was measured by three variables, ranging from 1 (*never*) through 4 (*often*), based on mother-reported responses to 10 questions on the frequency that she and her partner argued about certain things. Factor analysis grouped the 10 original variables into three distinct groups. Three scale variables averaged scores of the variables that clustered together: *arguments about intimacy* (sex, showing love, and affection; Cronbach's $\alpha = .73$ at 9-month and $.76$ at 2-year wave), *home tasks* (chores and responsibilities, children, money; $\alpha = .72$ at 9-month and $.74$ at 2-year wave), and *external issues* (drinking, other women or men, in-laws; $\alpha = .51$ at 9-month and $.53$ at 2-year wave).

For parenting support, family routines were captured with two continuous scales ranging from 0 through 7: (1) the number of days per week dinner is typically served at a regular time; (2) the number of days per week dinner is typically eaten as family. Questions on family dinners were only asked at the 2-year interview, and hence, are only included in the models predicting parenting at the 4-year interview. Factor analysis revealed three groups of fathers in terms of their reported frequency of child-focused activities at the 9-month and 2-year waves. Help with basic child tasks was a scale, ranging from 1 (not at all) through 6 (more than once a day), that reflected the average response to six questions about how often fathers helped with brushing their child's teeth, giving them a bath, playing with them, putting them to bed, dressing them, and preparing food for them (Cronbach's $\alpha = .83$ at both waves). Participation in cognitively supportive tasks was a scale (1 = not at all, 4 = every day) indicating how often in a typical week fathers reported reading, telling stories, and singing songs with their child ($\alpha = .65$ at 9-month and $.67$ at 2-year wave). Independent care of the child was a scale, ranging from 1 (never) through 5 (every day or almost every day),

of how often the father looked after their child during the past month while the mother did other things. Finally, a difference scale in cognitively supportive tasks was created to reflect the difference between the frequency that mothers participated in cognitively supportive tasks and the fathers' cognitively supportive tasks scale. Mothers' participation in cognitively supportive tasks was measured in the same way fathers' participation was (i.e., average of how often read, tell stories, and sing with child). Positive values on this scale indicated that mothers were more likely to report doing these tasks with their children.

Covariates—A wide range of time-invariant and time-variant measures were included in the multivariate models to account for factors potentially endogenous to both work schedules and parenting. Time-invariant variables captured at the baseline interview (i.e., 9-month interview) included *maternal race/ethnicity* (non-Hispanic White, non-Hispanic Black, Hispanic White, or some other race/ethnicity), *English language not spoken at home* (a binary variable), *mother employed prior to pregnancy* (a binary variable), and *child gender*. *Parental education* was coded as four dummy variables (college degree or more, an associate's degree or some college experience, a high school diploma or GED, or less than a high school diploma/GED) indicating the highest educational attainment of the parent with the most education.

Time-variant measures, measured at the 9-month and 2-year interviews, included annual *household income* (scale from 1 = \$5,000 or less through 13 = \$200,001 or more), *family structure* (mother married to child's biological father, cohabiting with biological father, or married/cohabiting with a male partner who was not child's biological father), and *number of siblings* (scale of number of other children in the household). *Maternal depression* at the 9-month interview was a scale ranging from 1 (*rarely or never*) from 4 (*most or all days a week*) indicating how often the mother reported feeling anxious, bothered, or sad to 12 questions that represent a modified version of the Center for Epidemiologic Studies–Depression Scale (Radloff, 1977). At the 2-year interview, maternal depression was measured using the Composite International Diagnostic Interview–short form (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). Using this form, mothers received a scale score ranging from 0 through 8 indicating whether, during the past 2 weeks, they felt sad/blue/depressed most days or ever lost interest in hobbies/work/activities that usually give them pleasure (for a total of two points). If they reported feeling sad/depressed at least almost every day during the past 2 weeks, they were then asked whether they felt more tired or less energetic than usual, whether they experienced weight change without trying, had trouble falling asleep, had trouble concentrating, felt worthless, and thought about death (for up to an additional six points). *Maternal self-reported health* was a scale ranging from 1 (*poor*) through 5 (*excellent*), indicating mothers' answer to the question “In general, would you say your health is ...” and *child health* indicated mothers' answer to the question “Would you say child's health is ...” (from 1 = *poor* through 5 = *excellent*). *Geographic region* was captured as four dummy variables indicating whether the family lived in the Northeast, South, Midwest, or West.

Analytical Plan

The first step was to examine whether mothers' and fathers' work schedules were associated with the maternal parenting outcome, net of controls for other factors potentially endogenous to parents' work schedules and maternal parenting. The next step was to investigate potential mediators of any significant associations from the first step.

The association between work schedules and maternal parenting was examined using cross-lagged SEM, enabling a longitudinal approach. Figure 1 presents the analytical model for the study, highlighting how several equations across multiple waves of data were estimated simultaneously. As an example, maternal parenting at the 2-year interview (time t) was predicted by maternal parenting at $t-1$ (the lagged effect) and work schedules at the 9-month interview ($t-1$; the cross-lagged effect), allowing for both time-varying (e.g., depression, health, income) and invariant (e.g., education, race/ethnicity, child gender) covariates (Bollen & Curran, 2006). This approach estimates the reciprocal relationships among the focal variables across interviews and the correlations within them (in effect, modeling within-mother residualized change). The statistical software *Mplus* was used to conduct the analyses, allowing for a mixture of logistic and linear estimators for the categorical and continuous outcome variables (Muthén & Muthén, 2008). Multiple imputation was used to impute on missing values (approximately 1% of the data). There were no missing data on maternal work schedules, and mothers who did not complete the in-home parenting assessment were not included in the sample.

Results

Table 1 describes the sample by mothers' work schedule at the 9-month interview. Differences across work schedules were similar at the 2-year interview, although a greater proportion of mothers were in paid employment by this time. Overall, just over a quarter of mothers were working full-time standard day schedules, whereas 41% of mothers were not employed nor seeking paid employment. Nonstandard schedules and unemployment were far less frequent, with 9.7% of mothers working part-time evening, night, or rotating/ split schedules, 5.1% unemployed, 2.8% working full-time evening/night schedules, and 2.4% working full-time rotating/split schedules.

Mothers were more likely to have partners who were working full-time nonstandard schedules when they themselves were working full-time non-standard or rotating/split schedules than when they worked standard schedules or were not in the labor force. For example, 12.6% of mothers' who worked full-time nonstandard schedules had partners' who also worked fulltime nonstandard schedules, compared with 7.6% of mothers who worked full-time standard schedules. In addition, mothers who worked nonstandard schedules were more likely to have a partner who was unemployed (7.5% vs. 3.0%). In part, this pattern is likely due to the differences in the socioeconomic characteristics of those who do and do not work nonstandard schedules, with mothers who worked full-time nonstandard schedules having lower levels of education and income than mothers with standard schedules.

Figure 2 displays the bivariate associations between mothers' and fathers' work schedules at the 9-month interview and the age-standardized maternal parenting scale z score at the 2-

year interview (these patterns were similar at the 4-year interview). Mothers with full-time and part-time standard schedules scored higher than average on the parenting scale than those in full-time nonstandard and rotating/split schedules. These patterns were similar for mothers' with partners who worked standard versus nonstandard schedules, although not as pronounced. One noticeable difference, however, was that fathers' (potential) underemployment—that is, part-time work—was negatively correlated with the maternal parenting scale.

Parents' Nonstandard Work Schedules and Mothers' Parenting

Turning to the cross-lagged SEM, Table 2 displays the estimates from the models predicting the age-standardized maternal parenting *z* score at the 2-year interview by maternal (first aim) and paternal (second aim) work schedules at the 9-month interview. Overall, once the extensive set of covariates were included in the models, work schedules at the 2-year interview were no longer significantly correlated with maternal parenting at the 4-year interview, and hence, are not presented (results from these models, and the other models that are estimated simultaneously, available on request from the corresponding author). Focusing on the pathway that was significant, Model 1, which included no covariates except for age-standardized parenting score at the 9-month interview, found that mothers who were working full-time nonstandard schedules ($b = -0.083$; $p < .001$) or who had a partner who worked full-time nonstandard schedules ($b = -0.055$; $p < .01$) had lower scores on the parenting scale compared with mothers who were working fulltime standard schedules or had partners working full-time standard schedules, respectively. The coefficient for mothers' own schedules was 46% larger than the coefficient for their partners' schedules. Thus, this initial modeling step provided support for Hypotheses 1 and 2.

Model 2 added the full set of time-variant and time-invariant covariates. The associations of both maternal and partner schedules with mothers' scores on the parenting scale were attenuated by these inclusions, although the coefficient for mothers' full-time evening/night hours remained significant. As a comparison, the effect size of the difference in the parenting score between mothers working full-time nonstandard schedule versus full-time standard hours was larger than the difference between having a high school diploma versus not. The associations between fathers' full-time evening/night hours and mothers' parenting scores were now only marginally significant ($p < .10$). Overall, then, sociodemographic factors associated with nonstandard schedules explained large portions—but not all—of the previously observed associations between parents' work schedules and mothers' parenting.

The third aim of this study was to examine potential family system mechanisms that might explain why mothers' parenting was related to their work schedules and their partners' work schedules. Models 3 to 6 in Table 2 iteratively added the variables tapping into these mechanisms to the fully controlled baseline models. In Model 3, the addition of variables that captured child care settings did little to attenuate the coefficient for mothers' nonstandard work schedules (from -0.045 to -0.043). In Model 4, the addition of the interpersonal factors attenuated the coefficient for mothers' nonstandard work schedules, although none of the variables were statistically associated with maternal parenting. This null finding could indicate that, net of socioeconomic and demographic factors associated

with working nonstandard schedules, there may be less time together to argue in dyads in which a parent works a nonstandard schedule (Bushnell, Colombi, Caruso, & Tak, 2010). Model 5, which added the parenting support factors, revealed the largest attenuation of the association between parents' nonstandard schedules and mothers' parenting, decreasing the association of mothers' nonstandard schedules by 0.024 and fathers' by 0.004 (and from marginal significance to nonsignificance). Fathers' participation in cognitively supportive tasks ($b = 0.080$; $p < .001$) and the difference in mothers' and fathers' reported participation in those tasks ($b = 0.032$; $p < .05$) were associated with higher parenting scores. In addition to fathers' participation serving as an important predictor of maternal parenting and a mediator of the association between parents' nonstandard hours and maternal parenting, so too did mothers' maintenance of a larger share of parenting responsibilities. As mentioned earlier, family dinner routine variables were only available at the 2-year interview, and were not significant mediators in these models. The results from Model 6, which examined all three sets of mediators simultaneously, were similar to those in Models 3 to 5.

Although there are some problems with the application of Sobel tests to this modeling framework, postestimation Sobel–Goodman tests with bootstrapped errors were conducted to provide further support for the potential that these variables are mediating the association between nonstandard schedules and maternal parenting. These tests revealed a statistically significant ($p < .05$) indirect association for fathers' participation in cognitively supportive activities and share of parenting responsibilities as mediators of paternal nonstandard work schedules.

The bottom line of these results, therefore, is that shared family interactions and negotiations played some mediational role in the association between parents' nonstandard schedules and lower maternal parenting scores, primarily through fathers' lower rates of participation in cognitively supportive tasks and mothers' decreased likelihood of having a greater share of these tasks due to her nonstandard schedule.

Discussion

A diverse economy that allows for work around the clock has led to more interest in what this work variability means for family life. In particular, non-standard work schedules are an emerging but common experience that has caused concern. Despite their prevalence, research has highlighted generally negative associations between parents' nonstandard work schedules and children's cognitive and socioemotional development, in addition to creating work–family spillover, relationship, and personal stress (Li et al., 2014). This study built on these findings to examine how nonstandard work schedules in two-parent families affect the quality of mothers' parenting, an oft-hypothesized but under examined proximate mechanism through which nonstandard schedules are thought to influence children's well-being. I focused on these processes during the preschool years, a sensitive period for children's long-term developmental trajectories (Heckman, 2006; Raby et al., 2015). Importantly, this study went further by also examining mother–father shared processes linked to nonstandard work schedules, such as decisions around child care, relationship stress, disruption to family routines, and paternal parenting involvement, to understand

nonstandard work schedule-related differences in family dynamics that might spillover into the way mothers parent.

Two important findings emerged from this analysis. First, mothers', and to a lesser extent fathers', full-time employment in jobs that were primarily worked in the evenings or at night was associated with lower scores on observer-rated cognitively and emotionally supportive mother–child interactions. These findings persisted net of key covariates often linked to employment experiences and parenting, such as parents' education and income. Second, fathers' less frequent participation in cognitively supportive tasks with their children (such as reading books) and larger imbalances between mothers' and fathers' reports of their own participation in cognitively supportive tasks explained some of the association between nonstandard schedules and mothers' lower parenting scores. Importantly, these findings point to the dyadic processes through which mothers' direct and indirect (through her partners') nonstandard work experiences affect their interactions with their children.

On the one hand, qualitative research on two-parent families where at least one parent works nonstandard hours highlights how these diverse schedules are employed to create work schedule “discordance” so parents can maximize time with their young children (Hattery, 2001; Täht & Mills, 2011). On the other, nonstandard work schedules are associated with stressors that might net out the potential benefits of additional time to invest in parenting (Hsueh & Yoshikawa, 2007; Tuttle & Garr, 2012). Overall, this study appears to support the latter—that mothers' own and their partners' nonstandard schedules appear to have repercussions for their ability to follow through on the types of parenting behaviors known to matter for their children's development. Future research, however, should examine the interaction of mothers' and fathers' work schedules to better understand what work schedule discordance, specifically, means for family life. It is important to investigate whether the associations between parents' nonstandard work schedules and mothers' parenting is stronger for those couples who are not achieving schedule discordance—beyond accounting for their own and their spouses' individual schedules. Due to small cell sizes in some mother–partner work schedule dyads in the ECLS-B and the use of this study's particular methodological approach which would require within-mother variation in these dyads, these analyses were not conducted here.

Of course, parents' experiences of nonstandard work schedules are not random. For example, in this study, parents who worked nonstandard schedules had lower educational attainment and household incomes compared with parents in most other work situations. Importantly, prior research has shown that high-quality child care may be more important for children from low-SES families—the same children most likely to have parents who work nonstandard schedules and a mechanism through which these schedules also influence their mothers' parenting (Burchinal et al., 1997). In this way, policies that target the lack of access to appropriate and affordable child care options for parents who work night schedules (or greater access to jobs that allow parents to maintain consistent daytime work schedules) could help alleviate some of the negative consequences these work schedules have for families (Henly & Lambert, 2005).

Likewise, and most pertinent to the findings of this study, policies and program interventions need to address the unique challenges of low-income families who work nonstandard schedules, who may miss opportunities to participate in cognitively supportive parenting and have disruptions in coparenting. On the legislative side, this means paying premiums for hours worked beyond a typical day and during nighttime, and mandating predictable work schedules so families can create routines and carve out consistent space for child-focused activities (Morsy & Rothstein, 2015). In addition, programs that have shown encourage and facilitate daily cognitively supportive activities with children—such as behavioral tools (e.g., text messaging reminders, social rewards) that encourage reading with children (Mayer, Kalil, Oreopoulos, & Gallegos, 2015)—might be particularly effective for low-income families competing with the stress and time conflicts of nonstandard schedules.

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Figure 1.
Analytical model of work schedules predicting parenting.

Figure 2.

Age-standardized maternal parenting z score at the 2-year interview by maternal and paternal work schedule at 9-month interview ($n = 3,650$).

Table 1

Sample Description by Maternal Work Schedule at 9-Month Interview.

	Total		Full-time standard		Part-time standard	Full-time evening/night	Full-time rotating/split	Part-time evening/night/rotating/split	Unemployed	Not employed, not looking for work
	N	%/Mean								
Paternal work schedule at 9-month interview										
Full-time standard schedule	2,450	73.0	73.1 ^{a,b}	75.6 ^{a,b,c,d}	64.1 ^{e,f}	65.0 ^{d,e}	69.4 ^b	66.8 ^{d,e,f,g}	74.6 ^{e,c,b}	1.6 ^g
Part-time standard schedule	100	2.1	1.5 ^g	3.2	7.3	0.4	2.7 ^{d,f}	1.7		
Full-time evening/night schedule	300	7.8	7.6	9.3 ^d	12.6	8.2	8.8	5.5	7.0 ^e	
Full-time rotating/split schedule	350	9.7	8.8 ^c	7.4 ^c	2.7 ^c	19.0 ^{a,b,d,e,f,g}	12.7 ^c	8.5 ^c	10.3 ^c	
Part-time evening/night/rotating schedule	100	1.9	1.9	0.6 ^{b,c,g}	1.4	5.6 ^e	2.5 ^e	2.4 ^e	2.0	
Unemployed	100	2.8	3.0 ^{b,e}	1.1 ^{a,b,d,f}	7.5 ^{e,g}	0.0	2.0 ^{a,b}	12.7 ^{e,d,f,g}	2.2 ^{b,e}	
Not employed, not looking for work	100	2.8	4.1	2.8	4.4 ^g	1.9 ^a	1.9 ^{a,b}	2.4 ^g	2.3	
Highest parental education										
Less than high school diploma/GED	250	8.1	4.9 ^{b,d,e}	5.8 ^{b,d}	7.4 ^b	7.6	4.8 ^{b,f}	17.4 ^{a,d,e,f,g}	10.6 ^{a,b,e,f}	
High school diploma/GED	650	19.7	15.8 ^{a,b,d,e}	10.0 ^{a,b,c,d,f,g}	24.8 ^{e,f}	16.7 ^{b,e}	20.9 ^{b,e}	33.9 ^{a,c,d,f,g}	23.0 ^{b,e,f}	
Some college/associate's degree	1,050	29.6	32.5 ^{a,d,g}	28.9 ^a	54.8 ^{a,b,c,d,f,g}	32.6 ^a	27.5 ^{a,f}	33.6 ^a	26.2 ^{a,f}	
College degree or more	1,650	42.6	46.8 ^{a,b,d}	55.3 ^{a,b,d,g}	13.0 ^{c,d,e,f,g}	43.2 ^{a,b}	46.9 ^{a,b,e}	15.1 ^{c,d,e,f,g}	40.2 ^{a,b,e,f}	
Household income (Scales 1-13)	3,650	8.30	9.21 ^{a,b,h,d,e,g}	8.99 ^{a,b,d,g,f}	7.55 ^{b,c,e,f}	9.06 ^{a,b,d,g}	8.49 ^{b,c,e,f}	5.99 ^{a,c,d,e,f,g}	7.76 ^{b,c,e,f}	
Mother employed prior to pregnancy	2,700	74.3	95.2 ^{b,d,e,g}	92.7 ^{b,d,f}	90.7 ^{b,d,g}	94.1 ^{b,d,g}	88.4 ^{a,b,c,d,f}	75.0 ^{a,c,d,e,g,f}	49.5 ^{a,b,c,e,g,f}	
N	3,650		1,050	450	100	100	300	200	1,500	
Proportion of sample		100.0	25.8	13.3	2.8	2.4	9.7	5.1	41.0	

Note. Unweighted *ns*, weighted percents. *ns* Rounded to nearest 50 per NCES guidelines. Number of siblings, maternal race/ethnicity, English not spoken at home, family structure, maternal age, child gender, region, maternal-reported child health, maternal depression, and maternal self-reported health not included in Table 1. *t* Test or χ^2 test indicating statistically different at $p < .05$ from:

^a Full-time nonstandard schedule.

^b Unemployed.

^c Full-time rotating/split schedule.

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$\hat{g}$ Part-time evening/night/rotating/split schedule.

f_j Full-time standard schedule.

e_p Part-time standard schedule.

p Not employed, not looking for work.

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Table 2

Cross-Lagged Models: 9-Month Work Schedule Predicting 2-Year Parenting Age-Standardized z Score ($n = 3,650$).

	Standardized coefficients (SE)					
	(1)	(2)	(3)	(4)	(5)	(6)
	No controls			With controls		
Parenting z score at 9-month interview	0.220 ^{***} (0.022)	0.109 ^{***} (0.023)	0.110 ^{***} (0.023)	0.113 ^{***} (0.024)	0.110 ^{***} (0.023)	0.110 ^{***} (0.023)
Maternal work schedule (ref: full-time standard schedule)						
Part-time standard schedule	0.028 (0.022)	0.026(0.021)	0.024 (0.020)	0.035 (0.022)	0.026(0.018)	0.024(0.018)
Full-time evening/night schedule	-0.083 ^{***} (0.021)	-0.045 [*] (0.022)	-0.043 [†] (0.023)	-0.032 (0.026)	-0.021 (0.030)	-0.021 (0.031)
Full-time rotating/split schedule	-0.008(0.019)	-0.008(0.019)	-0.009(0.018)	-0.008 (0.020)	-0.010(0.013)	-0.009(0.014)
Part-time evening/night/rotating/split schedule	-0.004 (0.022)	0.019(0.025)	0.023 (0.024)	0.014(0.026)	0.022 (0.023)	0.021 (0.020)
Unemployed	-0.074 ^{***} (0.020)	0.013 (0.020)	0.004 (0.020)	0.006(0.021)	0.004(0.012)	0.003(0.018)
Not employed, not looking for work	-0.116 ^{***} (0.025)	-0.014(0.030)	-0.035 (0.034)	-0.005 (0.032)	-0.035 (0.034)	-0.022(0.031)
Paternal work schedule (ref: full-time standard schedule)						
Part-time standard schedule	-0.045 [†] (0.025)	-0.027 (0.024)	-0.027 (0.022)	-0.022 (0.025)	-0.025 (0.020)	-0.020(0.019)
Full-time evening/night schedule	-0.055 ^{***} (0.017)	-0.035 [†] (0.018)	-0.034 [†] (0.018)	-0.037 [†] (0.020)	-0.031 (0.017)	-0.029(0.019)
Full-time rotating/split schedule	-0.004(0.017)	-0.012(0.019)	-0.009(0.019)	0.000(0.021)	-0.009(0.014)	-0.005(0.014)
Part-time evening/night/rotating/split schedule	0.023 (0.022)	0.046 [*] (0.022)	0.047 [*] (0.022)	0.049 [*] (0.020)	0.038 (0.024)	0.039 (0.025)
Unemployed	-0.029(0.021)	0.029 (0.022)	0.028 (0.023)	0.050 [*] (0.023)	0.022 (0.020)	0.021 (0.019)
Not employed, not looking for work	-0.042 [*] (0.020)	0.004 (0.023)	0.005 (0.023)	0.027 (0.025)	0.005 (0.022)	0.005 (0.022)
Child care mediators						
Child in any nonrelative care			-0.016(0.028)			-0.009 (0.025)
Child in any relative care			-0.113 ^{***} (0.032)			-0.101 ^{***} (0.030)
Child in any child care center			-0.004 (0.023)			-0.003 (0.023)
Number of nonparental care arrangements			0.067 [*] (0.030)			0.064 [*] (0.029)
Number of hours in nonparental care			0.009 (0.033)			0.004 (0.034)
Relationship factor mediators						
Relationship happiness (reverse coded, 1-3 scale)				-0.043 (0.027)		-0.030 (0.023)

	Standardized coefficients (S£)					
	(1)	(2)	(3)	(4)	(5)	(6)
	No controls			With controls		
Argue about intimacy (1-4)				0.050 [†] (0.026)		0.034(0.021)
Argue about home tasks (1-4)				-0.002 (0.024)		-0.007(0.018)
Argue about external issues (1-4)				-0.028 (0.025)		-0.022(0.017)
Family routine and parenting support mediators						
Helps with basic child tasks (1-6)					0.023(0.019)	0.024(0.019)
Participates in cognitively supportive tasks (1-4)					0.080 ^{***} (0.021)	0.080 ^{***} (0.021)
Takes care of child independently (1-5)					-0.022 (0.022)	-0.021 (0.022)
Mother-father difference in cognitively supportive tasks					0.032 [*] (0.015)	0.032 [*] (0.015)
R^2	.125	.247	.251	.223	.252	.258

Note. Standard errors in parentheses, *ns* Rounded to nearest 50 per NCES guidelines.

Models 2 to 5 control for: Parental education, child age, English language at home, maternal age, race/ethnicity, family structure, household income, siblings, region, maternal employment prior to pregnancy, maternal depression, maternal self-reported health, child gender, child health.

[†] $p < .1$.

^{*} $p < .05$.

^{**} $p < .01$.

^{***} $p < .001$.