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Are Parental Nonstandard Work Schedules a Barrier to Their School Involvement?

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Abstract

Parental school involvement is consistently associated with better child development outcomes. Although parental work schedules are expected to shape school involvement, little empirical research examines this relationship. Using nationally representative data from the Early Childhood Longitudinal Study, Kindergarten Cohort 2010-11, (N=6,047), we estimated associations between parents' work schedules and multiple indicators of school involvement. Compared to daytime schedules, flexible variable schedules were associated with more parental school involvement. Working a regular nonstandard schedule or employer-set variable schedule was not associated with school involvement, except that working nights was associated with attending fewer school events. We found limited evidence of heterogeneity by family structure or parent gender. These findings suggest parental work schedule flexibility may benefit child outcomes through increased parental involvement.

Keywords: work schedules, family engagement, school involvement, workplace flexibility

Are Parental Nonstandard Work Schedules a Barrier to Their School Involvement?

Parental involvement in children's schools is beneficial for children's academic and social success (Boonk et al., 2018; Fan & Chen, 2001). A variety of factors are associated with parents' level of involvement, including school receptivity (Berkowitz et al., 2021; Gale et al., 2022; Overstreet et al., 2005), parental educational expectations (Fan & Chen, 2001; Jeynes, 2022; Overstreet et al., 2005; Tan et al., 2020), and family demographic factors, which can affect their perspectives on education and their treatment by schools (Cooper, 2007; Posey-Maddox, 2017; Tan et al., 2020). Less research has focused on how aspects of parental employment, such as work schedules, might help or hinder parental involvement in school. Nonstandard work schedules—including evening, night, and variable shifts (Presser, 2003)—might pose barriers to parents' time availability for participating in school-based activities when these schedules do not align with their schools' event schedules. They might also take a toll on parents' physical and mental health (Ananat & Gassman-Pines, 2021; Joshi & Bogen, 2007; Lozano et al., 2016; Perry-Jenkins et al., 2007; Strazdins et al., 2006; Zilanawala & McMunn, 2022), limiting their capacity to be involved. Although parental nonstandard work schedules have been associated with child and family wellbeing outcomes (Li et al., 2014), including children's time with parents (Pilarz & Awkward-Rich, 2023), parents' mental health (Lozano et al., 2016; Strazdins et al., 2006), and child cognitive and socioemotional outcomes (Dunifon et al., 2013; Han & Fox, 2011; Kaiser et al., 2019; Wang, 2023), little empirical work examines how parental work schedules matter for parents' involvement with children's schools.

In this study, we apply a conceptual model of how parental work schedules relate to child development (Li et al., 2014) by proposing that parental involvement in schools is another aspect of family processes shaped by parental work schedules. We estimate associations between

parents' work schedules and their involvement in their children's schools using nationally-representative, longitudinal data from a cohort of kindergarteners and controlling for a rich set of child and family characteristics. Our measures of work schedules consider not only the nonstandard timing of shifts (e.g., evening and night shifts) but also variability in work schedules and whether this variability is employee-driven flexibility versus employer-driven instability. Due to the gendered nature of parental involvement in schools and inequality in parents' resources and capacity for involvement between single- and two-parent families, we also examine how these associations differ by family structure and between mothers and fathers in two-parent, heterosexual households. Our study contributes to theorization of how nonstandard work schedules shape child and family wellbeing and provides new empirical evidence on which types of nonstandard schedules might promote versus hinder parental school involvement.

Background

Defining Parent Involvement in Their Children's Education

Parental involvement in their children's education describes a range of ways that parents are involved in their children's growth at school. This includes activities that take place in schools, such as volunteering and attending school events, which we refer to as school-based involvement, as well as activities that take place in the home, such as reading with children, which we refer to as home-based involvement (Goodall & Montgomery, 2014). Parents' involvement in children's education is part of a broader concept of family (or parent) engagement, which also includes practices that schools use to build strong, bidirectional relationships with parents, create inclusive school and classroom environments, support parental involvement in their children's education, and connect parents to community resources (Epstein, 1995). Parental involvement in children's education is shaped both by schools' family

engagement practices and by contextual factors in families' lives, like parental work schedules, that can help or hinder their involvement (Kelty & Wakabayashi, 2020; Posey-Maddox & Haley-Lock, 2020). Likewise, parents' involvement can influence schools' family engagement practices and shape relationships between parents and school staff. To clarify terms, we use the term parental involvement to refer to parents' level of engagement in home- and school-based educational activities and use the term family engagement practices to indicate the steps schools take to promote parents' involvement in children's education.

In this study, we focus specifically on parental involvement in children's schools because prior research that examines the effects of parental work schedules on family processes and child outcomes has focused predominantly on home-based parental involvement in children's education (Li et al., 2014; Pilarz & Awkward-Rich, 2023). In the following section, we propose a conceptual framework linking parental work schedules to parents' school-based involvement. We then empirically test these associations.

Links between Parental Work Schedules & School Involvement

Li and colleagues (2014) offer a conceptual framework that links structural factors affecting the labor market to parental nonstandard work schedules, and ultimately, to child development. They suggest that the relationship between parental nonstandard work schedules and child development is mediated by family resources (e.g., parent health, income, time for children) and family processes (e.g., parent-child relationship, home environment) and moderated by select child, parent, and family demographic factors, including parent gender and family structure. Parental involvement in children's schools is not specifically referenced in this model, although a large literature links parental involvement in school with better child academic and socioemotional outcomes (Boonk et al., 2018; Fan & Chen, 2001). Therefore, in this study,

we posit that parental involvement in school is another aspect of family processes that might mediate the associations between parental work schedules and child developmental outcomes.

Nonstandard schedules might affect parental involvement in school by shaping when parents are available to participate in school activities. Parents who regularly work evenings and nights might have more availability to volunteer or attend school activities during the school day. However, if schools assume that parents work during the school day and schedule activities in the evenings, parents who regularly work evenings would be unable to attend. Parents who work variable schedules, especially if they have limited control over and advance notice of their schedules, might also experience more time barriers to participating in school activities due to the unpredictability of the timing of their work hours. Conversely, parents who work flexible schedules allowing them to work at different times of their choosing might have the most time availability to attend school events.

Another reason nonstandard work schedules might affect parental involvement in schools is by reducing parents' capacity for being involved in school. Nonstandard work schedules—especially evening and night shifts—are associated with higher levels of parental stress and poorer physical and mental health outcomes (Joshi & Bogen, 2007; Kaiser et al., 2019; Lozano et al., 2016; Perry-Jenkins et al., 2007; Strazdins et al., 2006; Zilanawala & McMunn, 2022). Thus, regardless of parents' time availability, nonstandard schedules might take a toll on parents' mental health and limit their ability to participate in school activities.

Few studies have examined the relationship between parental work schedules and their involvement in their children's schools (Haley-Lock & Posey-Maddox, 2016; Hoover-Dempsey et al., 2005; Ji & Koblinsky, 2009; Muller, 1995; Weiss et al., 2003), but their findings lend support to our conceptual framework. This prior research suggests that working long hours (e.g.,

full-time versus part-time), working variable or unpredictable schedules, having high work-family conflict, and lacking flexibility in work schedules or paid time off create barriers for parents to attend school events and meetings, have frequent conversations with teachers, and volunteer at school (Haley-Lock & Posey-Maddox, 2016; Holmes et al., 2018; Ji & Koblinsky, 2009; Posey-Maddox & Haley-Lock, 2020). Most prior research, however, relies on small samples, and no prior studies have looked at how distinct schedule types (e.g., night and variable shifts) are associated with parental school involvement.

A larger literature has examined the effects of parental nonstandard work schedules on other aspects of parental involvement with their children. These studies have found that working evening or night shifts are associated with less frequent parent-child interactions and less home-based educational involvement, such as less time spent reading together (Gassman-Pines, 2011; Han & Fox, 2011; Pilarz & Awkward-Rich, 2023; Rapoport & Le Bourdais, 2008; Wight et al., 2008). Parental evening and nights shifts are also consistently associated with poorer child development outcomes (Dunifon et al., 2013; Han et al., 2010; Han & Miller, 2009; Kaiser et al., 2019). Based on our conceptual framework and prior research, we hypothesize that parents who work regular evening or night shifts will be less involved in their children's schools compared to parents who work a regular daytime shift.

The effects of working variable (or irregular) schedules—typically defined as working different shifts from week to week—are more mixed. In some studies, parental variable schedules have been associated with more parental involvement and better child cognitive and socioemotional outcomes (Han et al., 2010; Han & Fox, 2011; Han & Miller, 2009; Pilarz & Awkward-Rich, 2023), while other studies have found that variable schedules are associated with more work-family conflict and poorer child behavioral outcomes (Hsueh & Yoshikawa, 2007;

Johnson et al., 2012; Walther & Pilarz, 2023). This prior research has not distinguished between employee- versus employer-driven variable schedules, which may explain the mixed findings.

Whereas employer-driven variable schedules might reduce parents' time availability and increase work-family conflict and stress, we would expect employee-driven variable schedules to facilitate parents' involvement with their children and reduce work-family conflict and stress.

Indeed, prior research has found that lack of schedule control via employer-driven variability or schedule inflexibility is associated with worse parent and child wellbeing, such as higher levels of parental depressive symptoms, less parent-child time, and more child behavior problems (Ananat & Gassman-Pines, 2021; Lozano et al., 2016; Nomaguchi & Johnson, 2016; Pilarz, 2021; Schneider & Harknett, 2022). In contrast, employee-driven flexibility has been associated with better parenting outcomes, including greater frequency of parent-child interactions and more consistency of family routines (Agrawal et al., 2018; Kim, 2020). Together, this prior research provides support for our hypothesis that employer-driven variable schedules might reduce parental involvement in children's schools while employee-driven variable schedules might increase involvement.

The relationships between work schedules and parental school involvement are likely gendered due to mothers contributing more time to school involvement (Kim & Hill, 2015; Raley et al., 2012) while also being more likely to work nonstandard schedules compared to fathers (Bahn & Cumming, 2020; Enchautegui, 2015). The prior research on parental work schedules and child and family wellbeing described above has most often focused on samples of parents composed of predominantly or exclusively mothers. The few studies that have compared the associations between mothers' and fathers' work schedules with family wellbeing suggests the relationships between work schedules and parent outcomes vary by gender. The few studies

focused on fathers have found that working a nonstandard schedule may increase their stress and work-family conflict and reduce their relationship quality (Zhao et al., 2021; Zilanawala & McMunn, 2022). A few studies comparing mothers to fathers have found that the negative effects are concentrated among fathers (Lozano et al., 2016; Zhao et al., 2021). However, most research examining gender differences on the effects of work on parenting, shows a greater impact on mothers than fathers (Lozano et al., 2016; Zhao et al., 2021; Zilanawala & McMunn, 2022). Given the limited research on fathers' school involvement and gender differences in the relationship between parents' work schedules and child and family wellbeing, we examine how fathers' work schedules, in comparison to mothers' work schedules, are associated with school involvement among two-parent, heterosexual families.

We expect that family structure might also moderate the relationship between parental work schedules and school involvement. Single-mother families face inter-related structural barriers through the institutions of both school and work. Compared to married mothers, unmarried mothers are more likely to experience barriers to school involvement and worse quality schedules (Enchautegui, 2015; Tan et al., 2020). Prior research on parental work schedules and child and family outcomes suggests that the adverse effects of nonstandard and inflexible schedules may be stronger among single-parent versus two-parent families (Heymann & Earle, 2000; Kim, 2020; Pilarz, 2021; Raley et al., 2012). Therefore, we expect that working evening and night schedules and variable shifts set by the employer will be more strongly negatively associated with parental involvement among single mothers compared to married mothers.

The Current Study

In this study, we expand on Li and colleagues' (2014) conceptual model by estimating the associations between various types of nonstandard schedules and parental involvement in school, which we conceptualize as a type of family process. Though we do not specifically look at child outcomes, this study is an important step in deepening our understanding of how parental work schedules shape family processes, which have implications for child development. We test these proposed relationships using nationally representative and longitudinal data from a cohort study of kindergarteners in the 2010-2011 school year. We first estimate associations between mothers' work schedules and parents' school involvement, considering multiple aspects of involvement, including volunteering, attending school events, and communicating with other parents. Our measure of work schedules captures regularly working during nonstandard times as well as employer- and employee-driven variable schedules. By using a more nuanced measure of variable work schedules, our study helps to disentangle the differential effects of different types of variability that might be driving mixed findings in prior studies. Based on prior research, we expect that, relative to a daytime shift, working a regular evening or night shift or an employer-set variable schedule will be associated with less parental school involvement, whereas working a flexible variable schedule will be associated with more involvement.

We next examine how these associations vary by family structure (two-parent versus single-mother families) and parent gender. We hypothesize that the associations between parental work schedules and school involvement will be stronger for mothers' work schedules compared to fathers' work schedules. We also expect that parental school involvement among mothers in two-parent families will be less negatively affected by working evening, night, or employer-set variable schedules due to their greater structural privilege and more social and

economic resources compared to single mothers. By examining subgroup differences, our study helps illuminate what supports for increasing school involvement may be needed for whom. Overall, we provide an initial analysis of newly theorized factors that might be impacted by parental work schedules while bridging two largely disconnected areas of research: work-family research and parental involvement in education. This work is essential for moving the research toward a more holistic, and thereby authentic, view of parents' lives and fully identifying the many policy and practice levers by which family and child outcomes could be improved.

Method

Data and Sample

This study uses data from the Early Childhood Longitudinal Study, Kindergarten Cohort 2010-11 (ECLS-K: 2011), which comprises a nationally representative sample of children attending kindergarten during the 2010-11 school year. The study collected information from children's teachers, school administrators, and parents. We used data from the kindergarten fall and spring parent interviews. Measures of parental employment and control variables come from the fall of kindergarten interview, and measures of parental involvement in children's school come from the spring of kindergarten interview. Although the ECLS-K conducted follow-up interviews in first through fifth grade, the parental work schedules measures were only collected in the fall of kindergarten. For this reason, we use only data from the kindergarten year.

Our sample includes children who were living with their biological or adoptive mother or a mother figure at the fall of kindergarten (N=12,895). We then excluded 18 children in two-parent, same-sex households. We further restricted the sample to children whose mother is employed, since the focus of the study is on mothers' work schedules (excluded 4,950), and in two-parent families, we restricted the sample to cases where both parents were working

(excluded 629). We restricted the sample to children whose parents participated in both the fall and spring of kindergarten interviews and had a valid survey weight (i.e., W12P0, constructed by the ECLS-K: 2011). Our final analytic sample includes 6,047 children who lived with their mother and in households with all parents employed.

Measures

Parental Work Schedules

Mothers were asked if they worked a regular day shift with most hours between 6am to 6pm. If they said no, then they were asked whether they work: a regular evening shift (between 2pm to midnight), a regular night shift (between 9pm and 8pm), a variable shift that changes from days to evenings to nights where they choose their own hours, or a variable shift with hours set by their employer. We used these items to create a categorical variable with the following mutually exclusive categories: (1) regular daytime shift, (2) regular evening shift, (3) regular night shift, (4) employer determined variable shift (including those who responded working when work is available), and (5) flexible variable shift, where respondents choose their schedule. We use the same method to construct equivalent measures of paternal work schedules. In regression models, we used a standard daytime schedule as the reference category because most parents worked this type of schedule and because we are most interested in estimating the effects of nonstandard schedules relative to a regular daytime schedule. Descriptive statistics for parental work schedules are shown in Table 1.

Parental Involvement in School

Parental involvement items asked whether the respondent (typically the child's mother) or other adults in the household have engaged in various activities at the school. We focused our analysis on three items that asked parents about volunteering, attending school events, and

communicating with other parents from their child's classroom. The ECLS-K: 2011 also asked about participation in other activities (e.g., fundraising) that we did not consider due to limited variability or lacking relevance to educational outcomes.

To measure volunteering, we used an item that asked whether, since the beginning of the school year, any adults in the household had ever served as a volunteer in the child's classroom or elsewhere in the school. To measure the total number of school events parents attended, we used an item that asked how many times the respondent or other adults in the household had gone to meetings or participated in activities at the child's school during the school year. The ECLS-K also asked about attendance at specific types of events, such as attending a back-to-school night. In sensitivity analyses, we used these items to see if our results were being driven by attendance at specific types of events. We found null associations and therefore do not report them in the manuscript; results are available from the authors upon request.

Finally, we looked at parents' regular communication with other parents in their child's classroom. The respondent reported on the number of parents with whom they regularly talk, either in person, by phone, or by texting, emailing, or using a social networking site. In contrast to our other dependent variables, this item was asked with respect to the respondent only. Because this measure is highly skewed toward zero, we used a binary indicator for whether the parent regularly talked with one or more parents. Descriptive statistics for parental involvement variables are shown in Table 2.

Supplemental outcomes. To shed light on how parents' work schedules might impact their school involvement, we examined parents' perceived barriers to participating in their child's school activities and parents' perceptions of schools' family engagement practices. With respect to barriers, we examined whether parents reported each of the following as barriers to

their participation in school activities: inconvenient meeting time and inability to get off from work. These items were asked specifically with respect to the respondent parent. Parents' perceptions of family engagement practices were measured as the mean score on five items about how well (very well, just okay, or doesn't do this at all) the school engages with families, including letting parents know between report cards how the child is doing in school and making parents aware of chances to volunteer at the school. Higher scores indicate more positive perceptions. If schools are less effective at engaging parents with nonstandard work schedules, then these parents might report less positive perceptions of schools' family engagement practices as well as lower levels of involvement.

Control Variables

We controlled for a large set of child, maternal, and family characteristics that could be associated with both mothers' work schedules and parental involvement in school. We draw control variables from the fall of kindergarten parent survey to avoid controlling for aspects of children and families that could explain the associations between maternal work schedules and involvement in school. Further, we excluded any potential control variables that prior research suggests might mediate the relationship between parental work schedules and their involvement in school (e.g., home-based involvement, maternal depressive symptoms). Descriptive statistics for control variables are shown in Table 3.

To isolate the association between mothers' schedules and their school involvement, we controlled for other aspects of employment that are associated with work schedules: total hours usually worked across all jobs; an indicator for working multiple jobs; and mothers' occupation. We combined occupation categories into four groups based on major Census groups and combining categories with small numbers; see categories listed in Table 3.

Controls for child characteristics include age (in months), sex, and parent-reported health (indicator for excellent versus poor/fair/good). We also controlled for an indicator for this being the child's first time in kindergarten and an indicator for the child attended full-day (versus part-day) kindergarten. Maternal characteristics include: age (in years); highest level of education (high school or less, some college, Bachelor's degree or higher); race and ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, non-Hispanic Asian or Pacific Islander, non-Hispanic multiracial or Native); and English proficiency (indicator for low proficiency defined as reading, writing, speaking, or understanding English less than very well as reported by the respondent). We controlled for family structure using the following categories: two biological or adoptive parents, one biological/adoptive parent and one other parent figure, and biological or adoptive mother only. We also included an indicator for living with one or more non-partner adults, such as grandparents or other relatives, and the total number of child's siblings in the household. Because the fall interview did not ask about family income, we use an indicator for the family having ever experienced financial difficulties since the child was born.

To adjust for parents' beliefs or attitudes about education that might influence their employment decisions and school involvement, we controlled for parents' educational expectations for their children based on an item that asks parents how far in school they expect their child to go: some college or less, 4-year college degree, and more than a 4-year degree. We controlled for early care and education (ECE) used in the year prior to kindergarten to capture prior employment and childcare decisions: used any type of center-based ECE, used only home-based ECE (e.g., relatives, nannies, or family child care homes), and used exclusive parental care. To capture community contextual factors that could influence parents' employment and school involvement, we controlled for urbanicity based on the location of the child's school

using the categories created by the ECLS-K: 2011: city (urbanized area in a principal city), suburb (outside a principal city and in an urbanized area), town (territory inside an urban cluster), or rural area (Census-defined rural territory).

In sensitivity analyses, we also included several control variables only measured in the spring of kindergarten. These include children's receipt of special education services in kindergarten, an indicator for the child changing schools between the fall and spring, and family income as a percentage of the federal poverty line. We also added a measure from the fall of kindergarten capturing home-based parental involvement in children's education (i.e., mean score on eight items that ask about the frequency with which family members engage in learning activities with the child with higher scores indicating greater frequency).

Analytic Approach

To address our first research question, we regressed mothers' work schedules on each measure of parental involvement in school using the following equation:

$$Y_i = \beta_0 + \beta_1 WSCHEd_i + \beta_2 JOB'_i + \beta_3 CONTROLS'_i + \varepsilon_i ,$$

where Y_i represents the parental involvement outcome, $WSCHEd_i$ is a five-category variable for maternal work schedules, JOB'_i is a vector of maternal employment characteristics, and $CONTROLS'_i$ is a vector of maternal, child, and family characteristics.

We used logistic regression for binary outcome variables (i.e., volunteering, regularly talking with one or more parents), and we show the average marginal effects from these models, which can be interpreted as the percentage point change in the outcome associated with a one-unit change in the independent variable. Because total school events is a count variable, we used negative binomial regression to account for its skewed distribution. We show average marginal effects from this model, which can be interpreted as the change in total number of events

associated with a one-unit change in the independent variable. For our supplemental outcomes, we used logistic regression to predict parents' barriers to involvement in school activities and OLS regression to predict parents' perceptions of schools' family engagement practices.

To understand variation across family structure and parent gender, we first estimated models restricted to two-parent families that included both mothers' and fathers' work schedules in the same model. We used the same set of control variables as shown in Table 3 except that we added measures of fathers' work hours, occupation, multiple job holding, age, education, and English proficiency. As mothers' and fathers' race and ethnicity were highly correlated, we used a combined measure of parental race and ethnicity (e.g., both non-Hispanic White, both non-Hispanic Black). Next, we estimated models restricted to single-mother families using the same covariates as shown in Table 3.

Results

Associations between Mothers' Work Schedules and Parental Involvement in School

We found positive associations between mothers working a flexible variable schedule (versus a daytime shift) and parental involvement in school (see Table 4). Mothers' flexible variable schedules were associated with being 7.8 percentage points more likely to volunteer (13% increase from sample mean), attending 2.4 more total school events (a 0.22 standard deviation increase), and being 5.6 percentage points more likely to talk with other parents from their child's classroom (9% increase from sample mean). Other types of work schedules were generally not associated with parental involvement relative to working a daytime shift; however, when mothers worked a night shift, parents attended 1.1 fewer total school events (0.10 standard deviation decrease). We also found that mothers' total work hours were associated with parental

involvement. For all outcomes, when mothers worked fewer than 35 hours per week, parents were more involved in school compared to when mothers worked 35-40 hours per week.

Our supplemental outcomes shed light on what might explain these associations (see Table 5). Mothers who worked a night shift or flexible variable shift were less likely to report that inability to get off work was a barrier to involvement compared to mothers who worked a daytime shift. This suggests that greater schedule flexibility might explain the positive associations between working a flexible variable schedule and parental involvement. For mothers working a night shift, however, this suggests factors other than time availability, such as parental stress and mental health, might be relevant. We found no association between mothers' work schedules and their perceptions of schools' family engagement practices. Our findings are robust to including additional control variables described in the measures sections (see Table A1 in the appendix).

Variation by Family Structure and Parent Gender

Figures 1-4 show results from analyses that examined heterogeneity by family structure and parent gender for outcomes that were associated with mothers' work schedules in the main models: volunteering, total school events attended, talking with any parents from child's classroom, and inability to get off work as a barrier (full results are shown in Table A2 in the appendix). Among single-mother families, we found no statistically significant associations between their work schedules and parental involvement. We attribute this to the smaller sample of single mothers compared to partnered mothers because many of the associations were similar in size as the full sample. For example, single mothers who worked a flexible variable schedule were 11 percentage points more likely to volunteer compared to those who worked a daytime shift, but the confidence interval for this estimate was very wide. The positive association

between flexible variable schedules and total number of school events was similar in size as in the full sample but marginally statistically significant ($p < .10$). With respect to night shifts, the association between working nights and total number of events attended was negative but substantially smaller than in the full sample.

Among two-parent families, we found few statistically significant associations between partnered mothers' work schedules and parental involvement. Unlike in the full sample, working nights (versus a daytime shift) was associated with being 7 percentage points more likely to talk with one or more parents. Similar to the full sample, night and flexible variable schedules were each associated with being less likely to report that inability to get off work is a barrier compared to working a daytime shift. For the other outcomes, the pattern of associations was similar as in the full sample; however, the coefficients were generally smaller and not statistically significant.

With respect to fathers' work schedules, we found similar trends as mothers' work schedules. Working a night shift was associated with attending 1.4 fewer total school events and with being 7.7 percentage points less likely to volunteer compared to working a daytime shift. Working a flexible variable shift (versus daytime shift) was associated with attending 1.6 more total school events but was not associated with other outcomes. Fathers' work schedules were not associated with work-related barriers to involvement. This is not surprising as these items were asked specifically with respect to the respondent parent, which was typically the child's mother.

Discussion

Although nonstandard schedules are consistently associated with adverse child development outcomes (Dunifon et al., 2013; Gassman-Pines, 2011; Han & Fox, 2011; Kaiser et al., 2019; Wang, 2023) and parental school involvement is an important factor in children's

academic and socioemotional success (Boonk et al., 2018; Fan & Chen, 2001), limited empirical research has examined the association between parental work schedules and school involvement. Moreover, prior conceptual research connecting parental work schedules to child developmental outcomes has excluded parent involvement in school as a salient mechanism (Li et al., 2014; Strazdins et al., 2006; Richardson, et al., 2021). To empirically examine how parental work schedules are associated with parental school involvement, we draw on a nationally representative study of kindergartners with employed parents to estimate associations between maternal work schedules and parental involvement in school, distinguishing between different types of nonstandard schedules based on their timing and flexibility and multiple aspects of school involvement. We also examined differences by family structure and parent gender. Our findings have implications for understanding the mechanisms via which parental nonstandard schedules might harm children's development.

Our findings suggest that maternal work schedules are associated with various aspects of school involvement, including volunteering, attending school events, and regularly communicating with other parents. One key finding is that when mothers regularly worked a night shift, compared to regularly working a daytime shift, parents participated in total fewer school events. Because mothers who worked a night shift were also less likely to report that inability to get off work is a barrier to participating in school activities, the negative association between night shifts and involvement likely operates through pathways other than mothers' availability, such as mothers' mental or physical health. This is consistent with other research that has found night shifts to be associated with negative outcomes for parenting and child wellbeing (Dunifon et al., 2013; Gassman-Pines, 2011; Kaiser et al., 2019). These findings

provide support for parent involvement in school as a potential mechanism by which nonstandard work schedules may affect child development.

Another key finding is that the associations between variable schedules and parental involvement in school depend on who has control over that variability. We consistently found that variable schedules set by the mother (as opposed to her employer) had positive associations with parental involvement in school, including being more likely to volunteer, attending more school events, and being more likely to talk with other parents, relative to working a daytime shift. Mothers who worked a flexible variable schedule were also less likely to report that inability to get off work is a barrier to their school involvement compared to mothers who worked a daytime shift. As our models controlled for mothers' work hours, these associations are not driven by mothers with flexible variable schedules being more likely to work part-time. These findings suggest that working a flexible variable schedule increases mothers' time availability for being involved. There were no associations between working a variable schedule set by the employer and any parental involvement outcomes.

These findings align with research suggesting the importance of employee control over schedules and schedule flexibility for parental and child wellbeing (e.g., Henly et al., 2006; Kim, 2020) and with prior studies showing that inflexible schedules make it difficult for parents to be involved in their children's schools (Haley-Lock & Posey-Maddox, 2016). Our findings might also help explain why some prior studies have found positive associations between parental variable schedules and child and family outcomes (Han & Fox, 2011; Pilarz & Awkward-Rich, 2023), while others have found negative associations (Hsueh & Yoshikawa, 2007; Johnson et al., 2012; Walther & Pilarz, 2023). Future studies should collect measures of work schedules that distinguish between employer- and employee-driven variability.

Our findings begin to address the near complete lack of knowledge on how fathers' work schedules matter for child and family outcomes (Kim, 2020; Pilarz et al., 2020). Focusing on two-parent, heterosexual families, we found similar patterns in the associations between parental work schedules and parent involvement among fathers and mothers. This suggests that working at night is associated with less involvement and working a flexible variable schedule is associated with more involvement among both mothers and fathers. Our findings highlight the need for future research to examine the role of fathers' work schedules in family life.

Although we examined differences in the associations between maternal work schedules and parental school involvement by family structure—between single and partnered mothers—we found limited evidence that these associations differ meaningfully across subgroups. For night shifts, we found some positive outcomes for partnered mothers (more likely to talk with other parents) than single mothers, potentially suggesting less adverse effects of working nights for partnered mothers. The benefits of working a flexible variable schedule for parental involvement were quite similar across both subgroups, though often not statistically significant. Indeed, our ability to explore these subgroup differences was hamstrung by our data source, which had relatively few single mothers. Therefore, we caution drawing strong conclusions from these findings and encourage future research on parental work schedules to examine heterogeneity by family structure.

Limitations

We highlight a few limitations of this research. Although we used longitudinal data and adjusted for a wide range of family characteristics, we cannot rule out the potential for omitted variable bias, and therefore, our estimates should not be interpreted as causal. It is possible, for example, that parents who place a higher value on involvement in their children's education may

self-select into particular types of schedules. In sensitivity analysis, we controlled for parental involvement in children's education in the home, and our findings were unchanged, which increases confidence in our estimates. Our ability to examine schedule variability was limited by the way work schedules were measured in the ECSL-K: 2011, and notably, in many other surveys asking about work schedules. Questions about variability are only asked of respondents who have a nonstandard shift, not of those with daytime schedules. Given our significant findings related to schedule flexibility and variability, associations between other schedule types, such as daytime schedules, may be attenuated by our inability to account for flexibility and variability within these types of "standard" schedules. Future data collection should measure flexibility and variability across all schedule types. Further, because the ECLS-K data were collected in 2010-2011, this limits the generalizability of our findings to today's context due to changes in the labor market since then, such as the expansion of remote work and the gig economy. Finally, we endeavored to examine heterogeneity across family structure and parent gender. However, same-sex parents and other family structures beyond single mother and two-parent heterosexual families were so small we could not explore them at all. Future data collection should over-sample these under-represented subgroups to ensure research can be inclusive of their experiences.

Practice Implications

This research applies a person-in-environment lens to explore how parents' experiences interact across multiple institutions: work, home, and their children's schools. Together, our findings suggest that the timing and, particularly, flexibility of parents' work schedules are associated – for better and worse – with their involvement in their children's school. These findings suggest a few key implications for social workers. First, our research contributes to the

burgeoning knowledge base that explores the distal effects of labor policy and practice on individuals, in this case affecting parents' involvement with school, which in turn has implications for their children's development. Given this, social workers who work with children and families may add parental work schedules and schedule flexibility to the list of factors they consider when assessing families' needs and resources or when identifying potential interventions for improving outcomes.

For social workers involved in labor policy advocacy, this study builds support for the positive benefits of universal labor policy to benefit distal social outcomes, such as children's socioemotional and academic success. Our findings lend support for policies and practices that increase workers' control and flexibility over when they work, such as fair scheduling laws. These laws promote access to an ample number of hours, prohibitions of back-to-back shifts, advance notice of schedules, and rights of employees to refuse or request shifts (Lambert, 2020). At the time of our writing only a few local and state governments have implemented fair scheduling laws and preliminary evidence shows their effectiveness may be undermined by loopholes and implementation challenges (Petrucci et al., 2022). However, research shows these laws can be beneficial, particularly for parents of young children, for whom fair scheduling laws have been associated with improved sleep quality and general wellbeing (Ananat et al., 2022). As these laws gain traction, future research can examine the impact of fair scheduling laws on distal outcomes, such as parental involvement in school and child academic and socioemotional outcomes.

Secondly, this research has implications for school social workers who might work with school and district leaders to increase parental involvement by adapting their opportunities for involvement to be inclusive of parents who work nights and inflexible schedules. For example,

school staff could provide ample advance notice for all involvement opportunities and systematically schedule involvement opportunities at different times to ensure that, regardless of their schedule type, parents can attend some school events and meetings. Moreover, when parents have low involvement in their children's schools, awareness of parental work schedules as a potential barrier may help identify new solutions for parental engagement. Finally, social workers working with parents, such as through the child welfare system or in therapy, might benefit from considering these findings in the context of how parental work schedules may contribute to parental involvement in their children's lives. Advocating to adjust work schedules may be a way to relieve some stressors and increase parent-child interaction via school involvement.

Conclusion

Research on parental employment and that on parental involvement in their children's education is often disconnected. This study contributes to a nascent area of research by leveraging a nationally representative sample of kindergartners to estimate the associations between parents' work schedules and their involvement in their children's schools. We find evidence that employee-set (flexible) variable schedules are supportive of parental involvement in school while working at night is associated with less involvement. Future research should continue to explore how parental work arrangements, like scheduling, spill over beyond the workplace to affect parent behaviors, and ultimately, child development.

Statements and Declarations

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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Table 1
Parental Work Schedules (%)

	Daytime Schedule	Evening Schedule	Night Schedule	Employer- Set Variable Schedule	Flexible Variable Schedule
Full Sample (N=6,047)					
Maternal Work Schedules	83.3	4.4	2.9	4.8	4.6
Two-Parent Families (N=4,779)					
Maternal Work Schedules	84.2	4.3	2.5	4.1	4.8
Paternal Work Schedules	82.9	2.9	3.8	6.3	4.1
Single-Mother Families (N=1,268)					
Maternal Work Schedules	79.8	4.7	4.3	7.4	3.8

Notes. Table shows the percentage of children whose parent worked each type of schedule.

Table 2.
Parental Involvement Outcomes, By Maternal Work Schedules (% or Mean(SD))

	Full Sample (N=6,047)	Daytime Schedule (N=5,041)	Evening Schedule (N=264)	Night Schedule (N=178)	Employer- Set Variable Schedule (N=285)	Flexible Variable Schedule (N=279)
Volunteered	62.0%	62.3%	55.2%	52.0%	55.8%	76.0%
Total number of events attended	8.1 (11.0)	8.0 (10.6)	6.7 (8.9)	5.7 (6.3)	7.9 (12.4)	11.9 (17.2)
Regularly talk with one or more parents	63.2%	63.7%	57.2%	55.6%	56.2%	73.3%
Supplemental outcomes						
Inconvenient meeting time is a barrier	35.6%	35.6%	37.2%	34.7%	37.1%	32.9%
Cannot get off from work is a barrier	56.4%	56.9%	58.8%	51.5%	62.1%	42.8%
Parent perceptions of FE practices	2.5 (0.5)	2.5 (0.5)	2.5 (0.5)	2.5 (0.5)	2.5 (0.5)	2.5 (0.4)

Notes. Table shows the percentage or mean and standard deviation (in parentheses) for each parental involvement variable for the full sample and for each maternal work schedule category

Table 3.
Sample Characteristics, By Maternal Work Schedules (% or Mean(SD))

	Full Sample (N=6,047)	Daytime Schedule (N=5,041)	Evening Schedule (N=264)	Night Schedule (N=178)	Employer- Set Variable Schedule (N=285)	Flexible Variable Schedule (N=279)
Controls from fall of kindergarten						
Mothers' work hours						
1-20 hours	17.1%	14.6%	29.6%	9.0%	30.5%	41.9%
21-34 hours	17.4%	16.3%	27.2%	23.0%	21.0%	21.3%
35-40 hours	48.0%	50.6%	33.9%	54.9%	34.9%	24.5%
41 hours or more	17.5%	18.5%	9.2%	13.1%	13.7%	12.4%
Mothers' occupation						
Managerial and professional specialty	38.7%	41.4%	14.9%	24.5%	19.6%	41.5%
Technical, sales, and admin support	33.5%	34.0%	29.4%	24.6%	38.6%	29.1%
Service	22.0%	19.2%	49.2%	33.9%	33.5%	26.4%
Farming, production, operators	5.8%	5.4%	6.4%	16.9%	8.4%	3.0%
Mother works multiple jobs	8.5%	7.8%	9.1%	7.6%	11.0%	17.5%
Child age (months)	67.5 (4.4)	67.5 (4.4)	67.6 (4.3)	68.1 (4.5)	67.7 (4.2)	67.4 (4.3)
Child is male	51.6%	51.5%	53.5%	57.1%	50.3%	48.9%
Child health is excellent vs. poor/fair/good	59.0%	59.1%	56.1%	59.0%	53.1%	66.9%
Child's first time in K	95.8%	95.8%	94.5%	92.4%	96.0%	97.4%
Full-day kindergarten vs. part- time	82.5%	83.3%	76.8%	85.2%	80.5%	72.9%
Maternal age	34.4 (6.0)	34.6 (5.9)	31.6 (6.1)	32.6 (5.6)	32.7 (6.2)	35.1 (6.0)
Maternal education						
High school or less	23.2%	21.6%	40.9%	34.2%	37.6%	13.4%
Some college	33.7%	32.5%	42.5%	45.9%	33.8%	39.5%
BA or higher	43.1%	45.9%	16.6%	19.8%	28.6%	47.1%
Maternal race and ethnicity						
White, non-Hispanic	66.0%	66.5%	53.2%	53.5%	64.2%	79.9%
Black, non-Hispanic	12.4%	11.8%	16.2%	27.8%	15.8%	6.0%
Hispanic	15.3%	15.3%	27.7%	10.2%	13.8%	9.5%
Asian/PI, non-Hispanic	4.3%	4.4%	2.5%	6.0%	2.6%	3.5%
Multiracial or native, non- Hispanic	2.0%	2.0%	0.3%	2.5%	3.6%	1.1%
Family structure						
Two bio/adoptive parents	72.0%	73.4%	67.4%	58.9%	57.7%	74.8%
One bio/adoptive parent and one other parent	6.2%	5.7%	9.1%	9.0%	8.9%	7.2%
Bio/adoptive mother only	21.8%	20.9%	23.5%	32.1%	33.4%	18.0%
Mothers' English proficiency is low	9.2%	9.0%	20.7%	8.2%	7.6%	5.3%
Lives with one or more non- partner adults	15.3%	14.4%	23.4%	19.6%	18.6%	16.7%
Number of siblings in HH	1.3 (1.0)	1.3 (1.0)	1.5 (1.1)	1.5 (1.1)	1.4 (1.0)	1.5 (1.1)

Table 3 continued.*Sample Characteristics, By Maternal Work Schedules (% or Mean(SD))*

	Full Sample (N=6,047)	Daytime Schedule (N=5,041)	Evening Schedule (N=264)	Night Schedule (N=178)	Employer- Set Variable Schedule (N=285)	Flexible Variable Schedule (N=279)
Controls from fall of kindergarten						
Ever experienced financial difficulties since child was born	23.5%	21.9%	30.0%	35.6%	38.0%	22.1%
Parents' expectations for child						
Some college or less	16.8%	15.9%	21.3%	20.5%	26.1%	16.3%
4-year college degree	50.1%	50.6%	41.8%	52.6%	44.5%	54.4%
Master's degree or higher	33.1%	33.5%	36.9%	26.9%	29.4%	29.3%
Child care prior to K						
Any center	75.2%	77.1%	62.5%	65.4%	66.1%	68.5%
Home-based only	13.4%	13.0%	17.8%	16.5%	16.2%	11.6%
Exclusive parental care	11.4%	9.9%	19.7%	18.2%	17.7%	19.9%
Urbanicity						
City	28.5%	28.1%	34.4%	38.3%	24.8%	26.3%
Suburban	35.8%	36.0%	32.3%	32.6%	32.4%	41.6%
Town	12.2%	12.1%	12.2%	8.1%	14.3%	13.8%
Rural	23.6%	23.8%	21.1%	21.0%	28.5%	18.4%
Controls for sensitivity analyses						
Family income (spring of K)						
<100% FPL	15.6%	14.4%	22.9%	23.4%	26.8%	13.1%
100-199% FPL	20.0%	18.7%	33.7%	21.8%	28.8%	19.7%
200% FPL +	64.4%	66.9%	43.5%	54.8%	44.4%	67.1%
Child received special education services (spring of K)	4.3%	4.1%	5.1%	7.8%	6.4%	3.1%
Child changed schools during K	2.0%	1.8%	2.4%	1.9%	5.0%	3.2%
Parental involvement in educational activities (fall of K)	2.9 (0.5)	2.9 (0.5)	2.9 (0.5)	2.9 (0.5)	2.9 (0.5)	3.0 (0.4)

Notes. Table shows the percentage or mean and standard deviation (in parentheses) for each control variable for the full sample and for each maternal work schedule category

Table 4.*Associations Between Maternal Work Schedules and Parental Involvement in School*

	Volunteered	Total Events Attended	Talks With 1 or More Parents
	(1)	(2)	(3)
Maternal work schedules ^a			
Evening shift	0.006 (0.031)	0.168 (0.563)	0.014 (0.030)
Night shift	0.003 (0.035)	-1.063* (0.537)	0.042 (0.036)
Employer-set variable	-0.011 (0.039)	0.341 (0.722)	-0.014 (0.027)
Flexible variable	0.078** (0.029)	2.352* (0.953)	0.056* (0.027)
Maternal work hours ^b			
1-20 hours	0.144*** (0.020)	2.822*** (0.568)	0.116*** (0.018)
21-34 hours	0.090*** (0.019)	0.867* (0.388)	0.060*** (0.017)
41 hours or more	-0.027 (0.018)	-0.143 (0.321)	0.023 (0.016)

N=6,047. a. Reference category is daytime shift. b. Reference category is 35-40 hours per week. In columns 1 and 3, average marginal effects from logistic regression models are shown. In column 2, the predicted number of events from negative binomial regression models are shown. Standard errors are in parentheses. Estimates are weighted. *p<.05; **p<.01; ***p<.001

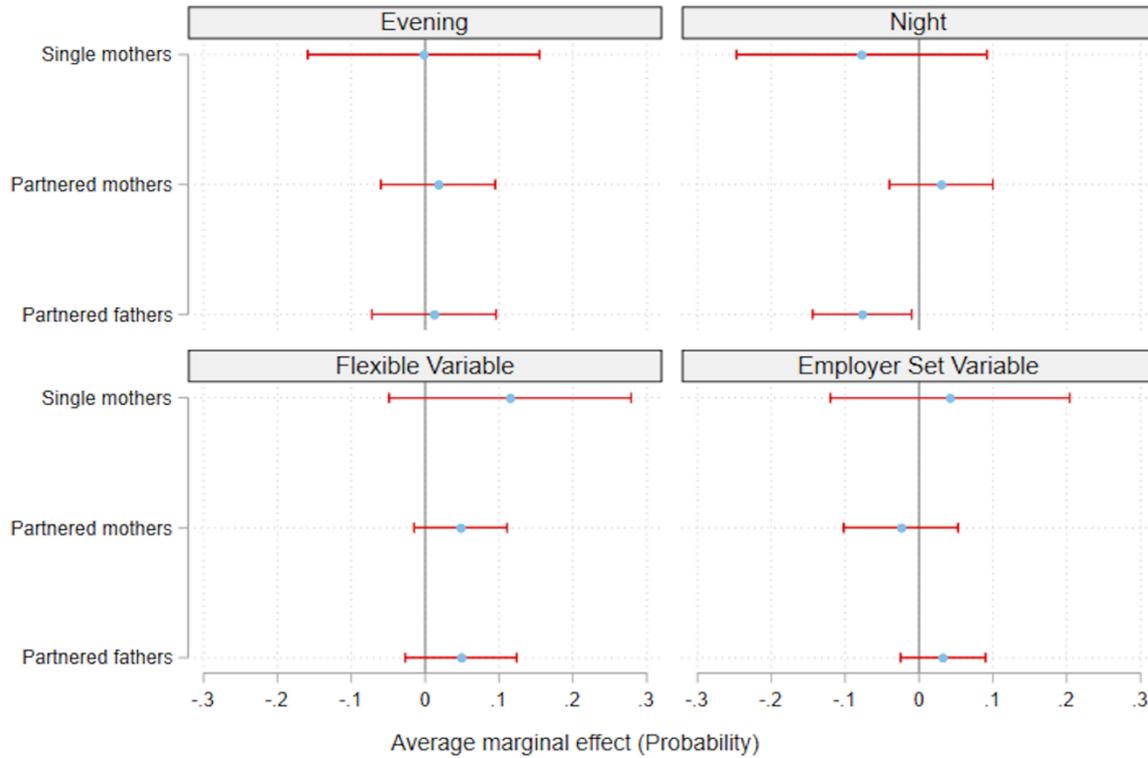
Table 5.*Associations Between Maternal Work Schedules and Parental Involvement In School: Supplemental Outcomes*

	(1)	(2)	(3)
	Meeting time is a barrier	Inability to get off work is a barrier	Perceptions of FE
Maternal work schedules ^a			
Evening shift	0.007 (0.033)	0.019 (0.034)	-0.014 (0.062)
Night shift	-0.049 (0.035)	-0.103** (0.038)	-0.004 (0.077)
Employer-set variable	0.023 (0.027)	0.052 (0.033)	0.035 (0.065)
Flexible variable	0.030 (0.032)	-0.083* (0.038)	0.046 (0.074)
Maternal work hours ^b			
1-20 hours	-0.158*** (0.020)	-0.194*** (0.021)	-0.011 (0.066)
21-34 hours	-0.055* (0.021)	-0.033 (0.022)	0.011 (0.041)
41 hours +	0.026 (0.022)	0.016 (0.018)	-0.010 (0.051)

Notes. $N=6,047$. a. Reference category is daytime shift. b. Reference category is 35-40 hours per week. In columns 1 and 2, average marginal effects from logistic regression models are shown. In column 3, coefficients from OLS regression models are shown. Perceptions of FE outcome is standardized to mean of 0 and standard deviation of 1. Standard errors are in parentheses. Estimates are weighted. FE=family engagement. * $p<.05$; ** $p<.01$; *** $p<.001$

Figure 1.

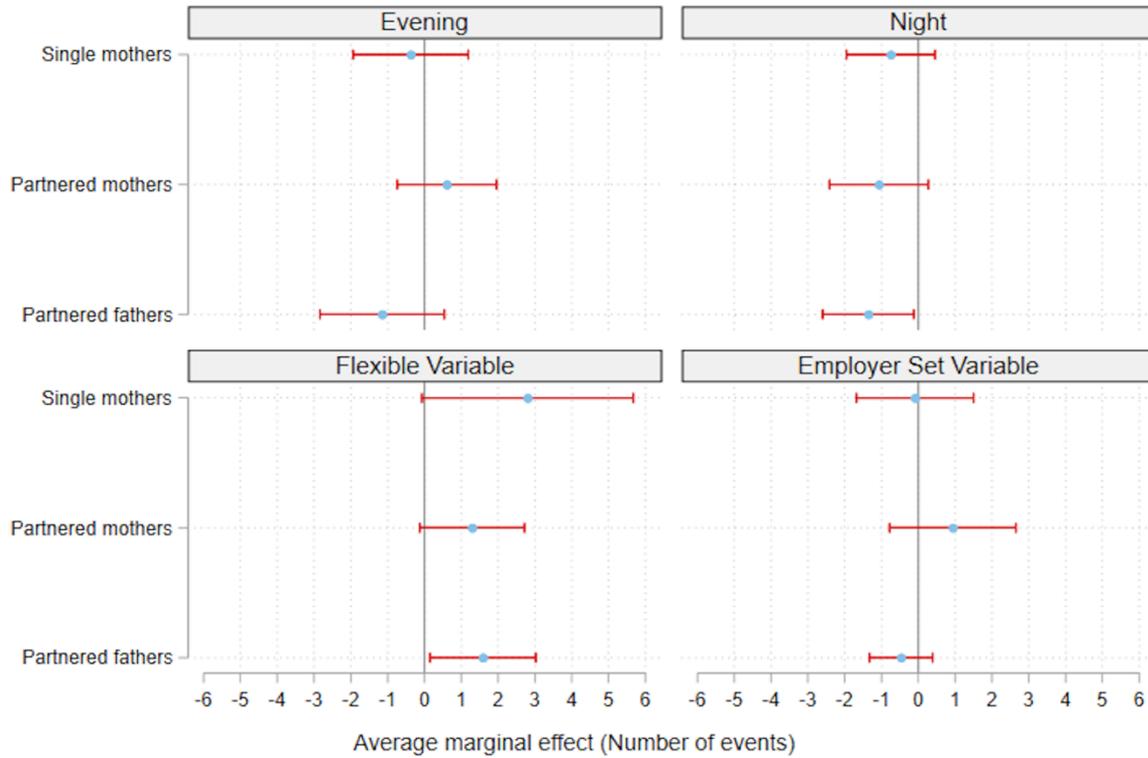
Associations Between Parental Work Schedules and Volunteering in School by Family Structure and Parent Gender



Notes. N=1,268 for single-mother subsample. N=4,779 for two-parent subsample. Figure shows average marginal effects and 95% confidence intervals from logistic regression models. Estimates are weighted.

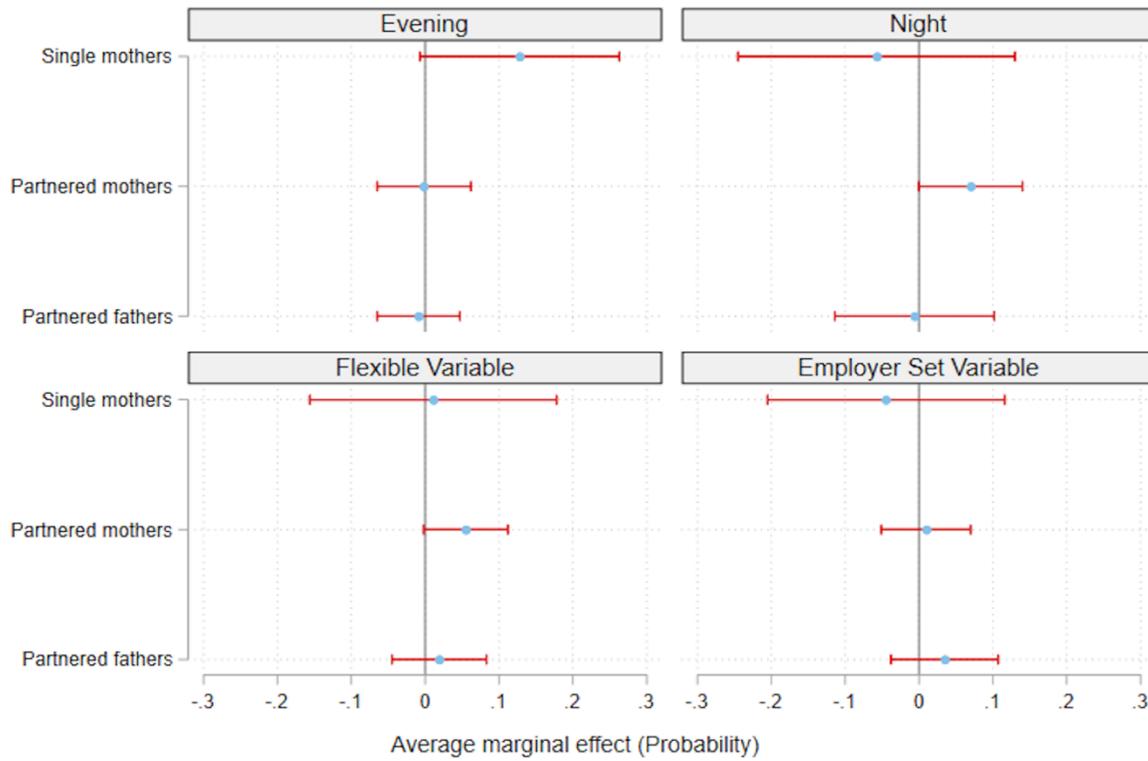
Figure 2.

Associations Between Parental Work Schedules and Total Events Attended by Family Structure and Parent Gender



Notes. N=1,268 for single-mother subsample. N=4,779 for two-parent subsample. Figure shows average marginal effects and 95% confidence intervals from negative binomial regression models. Estimates are weighted.

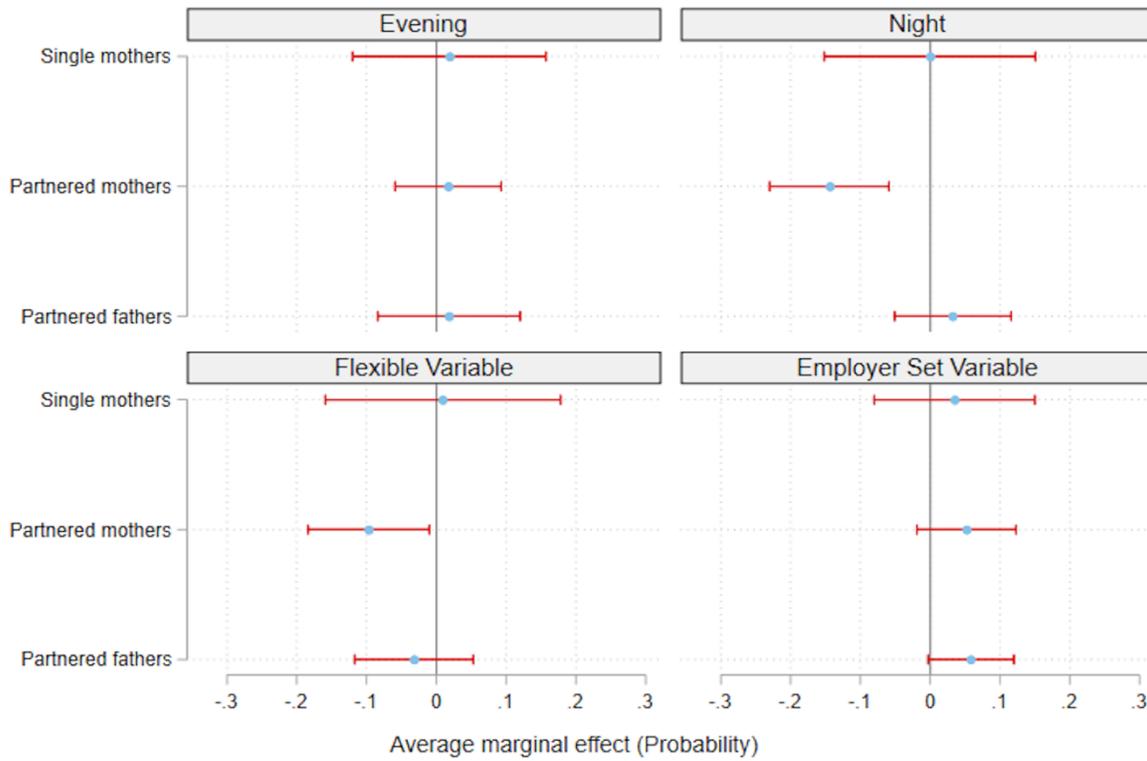
Figure 3.
Associations Between Parental Work Schedules and Talking with One or More Parents by Family Structure and Parent Gender



Notes. N=1,268 for single-mother subsample. N=4,779 for two-parent subsample. Figure shows average marginal effects and 95% confidence intervals from logistic regression models. Estimates are weighted.

Figure 4.

Associations Between Parental Work Schedules and Inability to Get Off Work Is a Barrier by Family Structure and Parent Gender



Notes. N=1,268 for single-mother subsample. N=4,779 for two-parent subsample. Figure shows average marginal effects and 95% confidence intervals from logistic regression models. Estimates are weighted.

Table A1.

Associations between maternal work schedules and parental involvement in school: Sensitivity analyses controlling for spring of kindergarten variables

	Volunteered	Total events	Talks with 1 or more parents	Meeting time is a barrier	Inability to get off work is a barrier	Perceptions of FE
	(1)	(2)	(3)	(4)	(5)	(6)
Maternal work schedules^a						
Evening shift	0.001 (0.031)	0.051 (0.521)	0.013 (0.031)	0.010 (0.034)	0.020 (0.036)	-0.013 (0.062)
Night shift	-0.006 (0.034)	-1.113* (0.544)	0.037 (0.035)	-0.043 (0.035)	-0.100** (0.038)	-0.009 (0.077)
Employer set variable	-0.006 (0.039)	0.489 (0.744)	-0.007 (0.026)	0.019 (0.027)	0.050 (0.032)	0.031 (0.063)
Flexible variable	0.076* (0.031)	2.367* (0.956)	0.056* (0.026)	0.030 (0.032)	-0.083* (0.038)	0.041 (0.074)
Maternal work hours^b						
1-20 hours	0.143*** (0.019)	2.780*** (0.567)	0.115*** (0.018)	-0.159*** (0.020)	-0.193*** (0.021)	-0.028 0.064
21-34 hours	0.088*** (0.019)	0.802* (0.385)	0.056** (0.018)	-0.057** (0.021)	-0.031 (0.023)	-0.007 (0.040)
41 hours or more	-0.032 (0.018)	-0.232 (0.316)	0.020 (0.016)	0.029 (0.022)	0.016 (0.018)	-0.006 (0.051)

Notes. $N=6,047$. a. Reference category is daytime shift. b. Reference category is 35-40 hours per week. In columns 1 and 3 to 5, average marginal effects from logistic regression models are shown. In column 2, the predicted number of events from negative binomial regression models is shown. In column 6, estimates from OLS regression models are shown. Perceptions of FE outcome is standardized to a mean of 0 and standard deviation of 1. Standard errors are in parentheses. Estimates are weighted. * $p<.05$; ** $p<.01$; *** $p<.001$

Table A2.

Associations between mothers' and fathers' work schedules and parental involvement: Variation by family structure and parent gender

	Volunteered	Total events attended	Talks with 1 or more parents	Meeting time is a barrier	Inability to get off work is a barrier	Perceptions of FE
	(1)	(2)	(3)	(4)	(5)	(6)
Two-Parent Families (N=4,779)						
Maternal work schedules ^a						
Evening shift	0.018 (0.039)	0.606 (0.683)	-0.002 (0.032)	0.014 (0.034)	0.017 (0.038)	-0.004 (0.093)
Night shift	0.030 (0.035)	-1.070 (0.679)	0.070* (0.035)	-0.066 (0.039)	-0.144** (0.043)	0.016 (0.087)
Flexible variable	0.048 (0.032)	1.294 (0.721)	0.055 (0.029)	0.010 (0.042)	-0.097* (0.044)	0.046 (0.071)
Employer set variable	-0.024 (0.039)	0.936 (0.868)	0.010 (0.031)	0.043 (0.035)	0.052 (0.036)	0.001 (0.083)
Paternal work schedules ^a						
Evening shift	0.012 (0.043)	-1.151 (0.854)	-0.009 (0.028)	-0.038 (0.037)	0.018 (0.052)	-0.181 (0.103)
Night shift	-0.077* (0.034)	-1.358* (0.627)	-0.006 (0.055)	-0.024 (0.040)	0.032 (0.042)	0.007 (0.079)
Flexible variable	0.049 (0.038)	1.587* (0.727)	0.019 (0.032)	-0.018 (0.037)	-0.032 (0.043)	-0.040 (0.084)
Employer set variable	0.032 (0.029)	-0.470 (0.434)	0.035 (0.037)	0.034 (0.037)	0.058 (0.031)	-0.058 (0.073)
Single-Mother Families (N=1,268)						
Maternal work schedules ^a						
Evening shift	-0.002 (0.079)	-0.374 (0.789)	0.128 (0.068)	-0.050 (0.070)	0.019 (0.070)	0.030 (0.187)
Night shift	-0.078 (0.086)	-0.749 (0.607)	-0.057 (0.095)	0.016 (0.088)	-0.000 (0.076)	0.013 (0.187)
Flexible variable	0.115 (0.083)	2.799 (1.449)	0.011 (0.084)	0.111 (0.081)	0.009 (0.085)	0.128 (0.236)
Employer set variable	0.042 (0.082)	-0.092 (0.802)	-0.045 (0.081)	-0.025 (0.057)	0.035 (0.058)	0.112 (0.144)

Notes. a. Reference category is daytime shift. In columns 1 and 3 to 5, average marginal effects from logistic regression models are shown. In column 2, the predicted number of events from negative binomial regression models is shown. In column 6, estimates from OLS regression models are shown. Perceptions of FE outcome is standardized to a mean of 0 and standard deviation of 1. Standard errors are in parentheses. Estimates are weighted.

* $p < .05$; ** $p < .01$; *** $p < .001$

