

Working Nonstandard Schedules and Variable Shifts in Low-Income Families: Associations With Parental Psychological Well-Being, Family Functioning, and Child Well-Being

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Longitudinal data from the New Hope Project—an experimental evaluation of a work-based antipoverty program in Milwaukee, Wisconsin—was used to explore concurrent and lagged associations of nonstandard schedules and variable shifts with parental psychological well-being, regularity of family mealtimes, and child well-being among low-income families. Working a combination of variable shifts and nonstandard hours was associated concurrently with lower teacher-reported school performance and engagement and higher levels of externalizing behavior problems. Fixed nonstandard schedules were associated with lagged decreases in parent-reported school performance, whereas working variable shifts was associated with lagged increases in parent-reported school performance.

Keywords: parental work schedules, low-income families, school performance, behavior problems

Spurred by a strong economy, the 1996 welfare reform legislation, and expansions of the earned income tax credit, the mid-to-late 1990s witnessed a historic rise in labor force participation rates among low-income parents in the United States (Blank, 2002; Moffitt, 2002). During the same years, the evolution of a 24-hr, 7-day-a-week (24/7) economy and rapid growth of service and sales industries led to demands for employment that extends into the evenings, nights, and weekends or on irregular shifts. For instance, estimates from the 1997 Current Population Survey indicated that only a slight majority (54%) of all wage and salaried adults were regularly employed on a fixed standard schedule, defined as daytime hours, 5 days a week from Monday to Friday (Presser, 2003). The confluence of these policy and labor market changes have led researchers and policymakers to express concerns over variation in work experiences and whether these differences matter for children in low-income families.

Children in low-income families are likely affected by parental work during nonstandard times (defined in the current study as work hours that typically fall outside of 8 a.m. and 4 p.m. on weekdays or on weekends) or variable shifts (defined in the current

study as work hours that are irregular, shift periodically from day to night or evening, occur on varying days, or vary from week to week). National surveys show that single parents and mothers with low levels of education are disproportionately overrepresented in low-wage occupational sectors—such as the service, sales, domestic, and child care sectors—that are likely to require work on nonstandard schedules or variable shifts (Loprest, 1999; Presser, 2003; Presser & Cox, 1997; Romero, 1992; Whitebook & Phillips, 1999).

Developmental research has been slow to pick up on societal changes in the temporal patterning of parental work schedules. For the most part, the work–family literature has assumed that parents hold jobs with fixed, daytime schedules (Presser, 2003). Research examining the developmental effects of parental employment that extends into the evenings, nights, and weekends or varies from week to week is rare. As a result, little is known about how children, particularly those in low-income families, fare in the 24/7 economy of the post-1996 era. The current study addresses this gap in the literature by examining the associations of parental work schedules at nonstandard times or on variable shifts with child development and exploring the mechanisms that might help explain these associations.

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Maternal Employment and Child Development

Studies investigating main effects of maternal employment on children have found mixed results. Comparing child outcomes when mothers work and do not work on an annual or monthly basis in large, nationally representative datasets, some studies have reported significant negative relationships between maternal employment during a child's 1st year of life and a child's cognitive and socioemotional outcomes (Baydar & Brooks-Gunn, 1991; Belsky & Eggebeen, 1991; Han, Waldfogel, & Brooks-Gunn, 2001), whereas others have linked maternal employment to enhanced cognitive outcomes for children (Vandell & Ramanan, 1992), and still others have found no overall net effect of maternal

employment on children's cognitive outcomes (Blau & Grossberg, 1990; Harvey, 1999).

The effects of maternal employment on children, in fact, may be moderated by job conditions—such as wages, work hours, benefits, and occupational complexity (for reviews, see Smolensky & Gootman, 2003; Zaslow & Emig, 1997). Studies have frequently focused on the total number of parental work hours measured on an annual or monthly basis, with relatively less attention paid to the patterning of work hours within a day or across weeks. A closer examination of the temporal patterning of work schedules within a day (standard vs. nonstandard schedules) or across days and weeks (variable shifts), therefore, has the potential to shed light on developmental processes linking employment with child development that have not been explored to date.

The few developmental studies examining the effects of nonstandard and irregular schedules on child outcomes have generally shown mixed results. Data from the National Institute of Child Health and Human Development Study of Early Child Care suggest that, for children 3 years old and younger, maternal employment in the evening, at night, or on a variable schedule (grouped together) was associated with slightly lower cognitive scores than was early maternal employment exclusively on standard schedules (Han, 2005). Another large-scale study, using data from the National Longitudinal Survey of Youth, found that school-age children were more likely to show poor educational outcomes if their parents had ever been employed on evening shifts (parent-defined, without specification of which hours these shifts encompassed; Heymann & Earle, 2001). Similarly, in a study focusing specifically on low-income families in Boston, Chicago, and San Antonio, findings suggested that children between 2 and 4 years old whose parents worked at nonstandard times—defined as work at night, on weekends, on split shifts, or on variable shifts (grouped together)—showed more parent-reported internalizing and externalizing problem behaviors and fewer positive behaviors than did those whose parents worked standard, fixed schedules (Bogen & Joshi, 2001). In contrast, Ross Phillips (2002), using data from the 1999 National Survey of America's Families, found that parental employment at nonstandard times (defined as work between 6 p.m. and 6 a.m.) showed few associations with child outcomes in low-income families. Similarly, Dunifon, Kalil, and Bajracharya (2005), in a longitudinal study of single women drawn from the Women's Employment Study, found few adverse associations of nonstandard (defined as mostly working evenings or mixed days and evenings) and irregular work hours with school-age children's behavior problems.

Two factors limit this small set of studies on nonstandard schedules and child development. First, these studies, with the exception of Dunifon et al. (2005), have either folded variable shifts into nonstandard schedules or excluded examination of variable shifts altogether. Second, few, if any, studies have explored the mechanisms by which work schedules might affect children's development.

Variable shifts likely have unique developmental consequences for children in low-income families. On the one hand, working variable shifts can be linked with work schedule flexibility or the option of choosing start and end times on the job (Galinsky, Bond, & Friedman, 1993). It is, therefore, possible that low-income parents who work variable shifts are better able to juggle the demands of work and family, and their children may fare better as

a result. On the other hand, to the extent that such schedules are dictated by an employer rather than by worker's choice or family needs and result in the unexpected instability and irregularity in work hours that are often prevalent in low-wage labor markets (Edin & Lein, 1997; Henly & Lambert, 2005), variable shifts could relate to more negative developmental outcomes for children.

Nonstandard Schedules, Variable Shifts, and Child Development: Potential Mediating Mechanisms

Here, we highlight three mediators through which nonstandard schedules and variable shifts might influence children's lives: parental stress, parental perceived time pressure, and regularity of family routines.

Parental Stress and Time Pressure

A substantial body of literature indicates that working late hours, particularly at night or on variable shifts, takes a mental toll on workers. Bohle and Tilley (1998), in a longitudinal study of female nurses, found higher levels of fatigue, job-related stress, and perceived work-family conflict among nurses who worked nonstandard schedules compared with those who did not. Gordon, Cleary, Parker, and Czeisler (1986), using data from the National Center for Health Statistics, found that women who worked variable shifts that included both day- and nighttime work were more likely to report higher levels of stress than were those who worked fixed shifts.

As stress builds, we anticipate that employment on nonstandard or variable schedules will relate to more negative child outcomes. High levels of maternal stress among families living in poverty have been related to both internalizing (withdrawn, depressed) and externalizing (aggressive, impulsive) behavior problems (Conger et al., 2002; McLoyd, 1990). Thus, prior research suggests that parental employment on nonstandard or variable schedules will have problematic consequences for children through associations with parental stress.

Family Routines

Nonstandard schedules or variable shifts could influence child development by altering family routines. Working late nights or variable shifts is often associated with difficulties in scheduling family activities and spending time with family members (Presser, 2003; Staines & Pleck, 1983; White & Keith, 1990).

Low-income parents, particularly those who are single parents, may encounter extraordinary hardships in negotiating a balance between work and family routines (Edin & Lein, 1997). In contrast to those in two-parent families, who have the option of sharing household and child-rearing responsibilities, many single parents have insufficient resources and receive support from others who are in similar insecure situations. Disruptions to the balance of family routines have the potential to further strain already precarious circumstances brought about by poverty. Instability in family routines and supervision, in turn, has been linked to unfavorable child outcomes, such as lower school achievement and more externalizing behavior problems (Edin & Lein, 1997; Yoshikawa, Magnuson, Bos, & Hsueh, 2003). To the extent that nonstandard or variable schedules disrupt family routines, these schedules will

likely have negative consequences for children in low-income families.

Cumulative Risks Associated With Nonstandard Schedules and Variable Shifts

Prior research also has not considered how nonstandard schedules and variable shifts interact to influence child development, despite evidence that these dimensions of work scheduling often, but do not always, co-occur (Beers, 2000; Presser, 2003; Presser & Cox, 1997). Models of cumulative risk suggest that the presence of one risk factor does not necessarily relate to a greater incidence of negative developmental outcomes, whereas the presence of multiple risk factors increases the likelihood that children will show negative developmental outcomes (Rutter, 1987; Sameroff & Chandler, 1975). Children whose parents work both nonstandard schedules and variable shifts at the same time may be at a particular developmental disadvantage compared with other children. For example, parents who work both variable and nonstandard schedules may feel even more stress and more extreme hardships in juggling family routines because they must rely on a patchwork of arrangements to care for their children during times of the day when formal, center-based care is less readily available (Henly & Lambert, 2005; Siegel & Loman, 1991). As a result, these children might show poorer school achievement and more behavior problems than children whose parents work either nonstandard or variable shifts but not both.

At the same time, variable shifts exclusively during standard times of the day (e.g., a full-time job with standard hours and flexible start and end times or a part-time job with standard hours on alternate weekdays) may have somewhat different effects for low-income children, because parents who work such schedules are better able to negotiate the balance between work and family. Parents who work variable standard shifts may have the flexibility of tending to family emergencies as needed and taking care of daily household errands and chores during the day while their children are at school. Moreover, it is possible that variable shifts during daytime hours allow parents to better monitor their children during after-school hours when children are most likely to spend time unsupervised (Carnegie Council on Adolescent Development, 1992). Therefore, although variable shifts during daytime hours can be stressful in the sense that parents may not be able to plan being at home when they want or need to be (Henly & Lambert, 2005), this situation could have some beneficial consequences for their children.

In the current study, we use longitudinal data from a sample of low-income families from Milwaukee, Wisconsin, to examine independent and joint associations of nonstandard work hours and variable shifts with children's parent- and teacher-rated school performance and behavior problems. We examine concurrent and lagged associations of parental work schedules with child outcomes assessed at multiple time points. Finally, we explore the potential mediating roles of parental psychological well-being and family functioning—namely, parental perceived time pressure, parenting stress, and regularity of family mealtimes—for explaining these associations.

Method

New Hope Project and Sample

The New Hope Project, conducted in Milwaukee, Wisconsin, is an experimental evaluation of an antipoverty program aimed at moving low-income persons toward work and greater self-sufficiency (see Bos et al., 1999; Huston et al., 2003). New Hope was designed with the guiding principles that people who are willing to work should have the opportunity to do so and that people who work full-time should not be poor. New Hope was implemented from 1994 to 1998 and offered participants access to (a) earnings supplements to increase participants' incomes up to the poverty threshold for those who worked at least 30 hr a week, (b) affordable health insurance, (c) child care subsidies, (d) program representatives with low caseloads who provided assistance in finding jobs, and (e) full-time community service jobs for participants who could not find jobs on their own.

Eligibility for the New Hope Project was extended to all low-income residents of two neighborhoods in Milwaukee's poorest areas (as evidenced by a demographic survey conducted in January of 1996). The *north side* neighborhood was predominantly Black (62%), whereas the *south side* neighborhood was primarily Hispanic (56%). Each neighborhood had high poverty and unemployment rates. On the north side, 40% of residents had incomes below the poverty line, and the 1996 unemployment rate was 39%. On the south side, the poverty rate was 37%, and the unemployment rate was 16%. In both neighborhoods, 29% of households in which children lived were single-parent households, and approximately 15% of residents reported receiving Aid to Families with Dependent Children (AFDC; Brock et al., 1997). In the evaluation of New Hope, participants had to meet four eligibility criteria: (a) live in one of the two targeted low-income neighborhoods in Milwaukee, (b) be at least 18 years old, (c) have an income at or below 150% of the federal poverty threshold, and (d) be willing to work at least 30 hr a week.

In total, 1,362 low-income adults were enrolled in the New Hope Project between August 1994 and December 1995. The sample for the current study was restricted to all parents in the New Hope Project (55% of the total sample) with children between the ages of 1 and 10 years, 11 months, at random assignment—the Child and Family Study (CFS) sample. This sample included 745 parents and 928 focal children. Table 1 provides a description of the demographic characteristics of the CFS sample.

Data on work, family life, and child well-being were gathered from several sources. Surveys were administered to parents in the CFS sample at 2 years and at 5 years after random assignment and asked parents about their employment experiences, work-related outcomes during the time of the intervention, family practices, and children's achievement and social behaviors for up to 2 focal children per family. Teachers of school-age children in the CFS sample were sent questionnaires and asked to rate children on a variety of academic behaviors and skills and behavioral adjustment outcomes at the 2- and 5-year follow-ups.

Response rates at the 2-year and 5-year follow-ups were fairly high. At the 2-year follow-up, 78% of parents in the CFS sample responded to the survey, resulting in a sample of 581 parents and 668 school-age children (those children who were between 5 and 12 years old at the 2-year follow-up). Parents granted permission for teachers to be contacted for 566 of these 668 children. Teachers

Table 1
Descriptive Statistics of Sample Characteristics and Study Variables

Characteristic	Frequency (%) ^a or <i>M</i> (<i>SD</i>) ^b
Parent ^c	
Sex (female)	91.5%
Age	29.2 years old (6.7)
Black	56.1%
Hispanic	27.3%
One-adult household	84.6%
Three or more children in household	47%
Child less than 2 years old in household	50%
Any full-time work in prior year	84.1%
High school diploma/GED	62.1%
Owned a car	44.0%
Current AFDC receipt	82.0%
Received AFDC as a child	49.1%
Prior earnings \$1–\$4,999 ^d	40%
Prior earnings \$5,000 or above ^d	23.3%
Child	
Sex (male)	52%
Age at 2-year follow-up	7.2 years old (2.3)
Work schedule in prior week ^e	
Not employed	31.8%
Total work hours ^f	40.5 hr (15.0)
Total work hours on nonstandard schedule ^f	17.5 hr (12.8)
Standard schedule	41.0% (60.1%) ^g
Fixed	30.5% (44.7%) ^g
Variable	10.5% (15.4%) ^g
Nonstandard schedule	27.2% (39.9%) ^g
Fixed	17.7% (26.0%) ^g
Variable	9.5% (13.9%) ^g
Variable shifts	20.0% (29.3%) ^g

Note. *N*s = 581 (parents) and 668 (children) with valid 2-year survey data. Percentages may not add up to 100 due to rounding.

^a For categorical variables. ^b For continuous variables. ^c Assessed at random assignment (RA). ^d Assessed for the 12 months prior to RA. ^e Assessed at the 2-year follow-up interview. ^f Excludes parents who were not employed. ^g Percentages in parentheses are based on the denominator of employed parents at the 2-year follow-up (*n* = 396).

returned 424 of the teacher-reported questionnaires (63% response rate for the total 2-year sample). Five hundred and sixty-one parents with 840 school-age children between the ages of 6 and 16 years at the 5-year follow-up in the CFS sample responded to the survey (75% response rate). Parents granted permission for teachers to be contacted for 796 of these 840 children. Teachers returned 548 of the teacher-reported questionnaires (65% response rate for the total 5-year sample).

We examined child outcomes that were measured at both the 2- and 5-year follow-ups. The longitudinal sample for the current study focuses on 486 parents who responded to both the 2- and 5-year surveys with focal children who were between the ages of 5 and 12 years at the 2-year follow-up and between the ages of 8 and 16 years at the 5-year follow-up (529 children with valid survey data and 245 children with valid teacher-reported outcomes).

Comparisons of baseline characteristics between respondents and nonrespondents at the 2- and 5-year follow-ups were con-

ducted to assess the possibility of response biases on parent surveys and teacher-reported questionnaires. All subsequent analyses adjusted for differences in these background characteristics.

At the 2-year follow-up, survey respondents and nonrespondents were similar in most respects, though some significant differences were found: Respondents were more likely to be male, more likely to be under the age of 25 years, more likely to be African American, more likely to have received a GED or high school diploma, and more likely to have worked full-time prior to random assignment than were nonrespondents. We also found few differences between the full survey sample and those for whom teacher reports were obtained; children with valid teacher-reported data were less likely to have a male primary parent and were more likely to have a parent who had ever worked full-time prior to baseline than were children without valid teacher-reported data.

At the 5-year follow-up, compared with nonrespondents, survey respondents were more likely to be male, more likely to have ever worked full-time prior to baseline, and were more likely to have lived as a child in a household that received AFDC. In addition, compared with children without valid teacher-reported outcomes at the 5-year follow-up, those in the survey sample were less likely to have received AFDC at baseline.

Comparisons of baseline characteristics between the 2- and 5-year survey and teacher-reported samples were also conducted. No significant differences were found.

Measures

Background characteristics. The following variables, created from data collected at baseline, encompassing areas of demographics, family structure, and human capital, were used as covariates in the analyses, as prior developmental studies have suggested that race and ethnicity and many characteristics associated with growing up in poverty can influence child development (e.g., Duncan & Brooks-Gunn, 1997; Garcia Coll et al., 1996) and can be related to the schedules that parents work (e.g., Presser, 2003; Presser & Cox, 1997). A dummy variable represented sex of parent (1 = male). Two dummy variables represented Black and Hispanic categories (with White as the default category). A continuous variable represented parent's age in years. Two dummy variables were created representing parent's earnings at baseline: whether the parent earned less than \$5,000 and whether the parent earned \$5,000 or more (with no earnings at baseline as the default category). Three dummy variables were created representing whether the parent grew up in a household that ever received AFDC, whether the parent received AFDC currently, and whether the parent had access to a car (defined as either owning a car or being able to borrow a car when necessary). Three dummy variables were created representing the following aspects of household structures: one-adult household, three or more children in the household, and a child less than 2 years old in the household. Parents' human capital characteristics were represented by two dummy variables: whether the parent had worked full-time in the prior year and whether the parent had graduated from high school or received a GED. In addition, a dummy variable was used to represent membership in the New Hope Project or control group. Finally, a dummy variable represented sex of child (1 = male) and a continuous variable represented child's age in years.

Nonstandard schedules, variable shifts, and total work hours. To allow assessment of work schedules, parents completed a

self-report time-use grid for the 7 days prior to the 2-year follow-up survey. Work schedules were not assessed at the 5-year follow-up. Parents were prompted with questions such as "What times did you work at a job away from home?" This included the time it took parents to travel to and from their jobs. Responses were recorded on a time grid. On the basis of the time grid, parents who were not working in the prior week were grouped in a *no work* category (1 = no work, 0 = work). At the 2-year interview, parents were also asked,

How long does it usually take you to get to the place where you work?
That is, how long does it take you to travel from your front door to the front door of your work one way, including any time you may spend dropping children off along the way?

To adjust parents' start and end times on the job, the length of parents' commute was added to the start times and subtracted from the end times on the job that were reported on the time grid. A continuous variable of total hours worked in the prior week was created. Whether parents were not working in the prior week and total hours worked were used as covariates in the analyses.

A standard work schedule was defined as any schedule in which more than half of the hours worked on the job fell between 8 a.m. and 4 p.m. on weekdays (Mondays–Fridays). A nonstandard work schedule was defined as any schedule in which at least half of the hours worked on the job fell outside of 8 a.m. through 4 p.m. on weekdays and anytime during the weekends. These work schedule definitions parallel those used in prior research (e.g., Hedges & Sekscenski, 1979; Presser, 1995, 2003).

To allow assessment of work on variable shifts, parents were asked, "Do you generally work the same hours every workday or different hours?" A dichotomous variable was created with the response categories "almost always work the same hours" and "usually work the same hours" combined representing fixed shifts and the response category "different hours on different days" representing variable shifts. In prior research, Presser (1995) was able to specify rotating schedules (a schedule that changed periodically between days and evenings and nights), variable workdays (days that varied, which may or may not include weekends), and schedules that were too irregular to classify. In this study, variable shifts included any schedule in which (a) work hours fluctuated from week to week, regardless of whether shifts from day to nonday hours occurred or (b) work hours occurred at different times on different days of the week, even though these times did or did not vary from week to week. We were unable to further differentiate rotating schedules, irregular schedules, and variable hours and/or days.

To investigate the interaction of nonstandard schedules and variable shifts, we took the additional step of creating dummy variables representing the following mutually exclusive work schedule categories: (a) fixed nonstandard schedules, (b) variable standard schedules, and (c) variable nonstandard schedules. The omitted category, parents who worked fixed standard schedules, served as the comparison group for the analyses examining the joint associations of nonstandard schedules and variable shifts with child development, parental psychological well-being, and family routines. This method of coding schedules is similar to that used by Presser (2003).

Parental stress. Parental stress was assessed by a single item at the 2- and 5-year follow-ups. Parents were asked how much of the

time during the past month they felt stressed. Responses were recorded on a 4-point scale ranging from "none of the time" to "almost all of the time." Higher scores represented higher levels of stress.

Parental perceived time pressure. A 2-item scale of parent time pressure was used; at the 2- and 5-year follow-ups, parents were asked how often they felt rushed and how often they had extra time. Responses were recorded on a 5-point scale ranging from "never" to "all of the time." Higher scores represented higher levels of pressure. The correlation between the two items was .31.

Regularity of family mealtime. A single item was used; at the 2- and 5-year follow-ups, parents were asked how often the family ate dinner at the same time on weekdays. Responses were recorded on a 3-point scale ranging from "different times on different weekdays" to "almost always the same."

Teacher ratings of child school achievement. The teacher survey collected at the 2- and 5-year follow-ups included the 10-item Academic subscale of the Social Skills Rating System (Gresham & Elliott, 1990) rating the child's overall school performance in comparison with others in the same classroom on skills such as reading, math, intellectual functioning, motivation, oral communication, and classroom behavior. The 5-point scale ranged from "bottom 10 percent" to "top 10 percent." At the 2-year follow-up, a 12-item measure of classroom skills, adapted from Wright and Huston's (1995) Classroom Behavior Scale, was also collected, rating the child's conformity to classroom rules and routines, ability to work and complete tasks independently, and ability to make transitions without becoming distracted. The coefficient alpha was .90. The correlations among the measures of achievement ranged from .63 to .68.

Parent ratings of child school achievement. Parents rated their children's overall level of achievement on a single item collected at the 2- and 5-year follow-ups. Parents were asked the following question: "Based on your knowledge of the child's schoolwork, including report cards, how has he or she been doing in school overall?" Responses were recorded on a 5-point Likert scale ranging from "poor" to "very good." The correlations of parent-reported and teacher-reported achievement measures ranged from .28 to .44.

Child behavioral outcomes. Teachers and parents rated child behavioral outcomes using two subscales from the Problem Behavior Scale of the Social Skills Rating System (Gresham & Elliott, 1990) at the 2- and 5-year follow-ups. The 6-item externalizing subscale tapped aggressive behaviors and lack of behavior control. The 9-item internalizing subscale tapped behaviors such as social withdrawal and excessive fearfulness. All of these items were answered on a 5-point scale from "never" to "all of the time." The internal consistencies for parent-reported subscales ranged from .61 to .81. The internal consistencies for teacher-reported subscales ranged from .78 to .92. Correlations among parent-reported and teacher-reported externalizing and internalizing subscales ranged from .02 to .43.

Analyses

We conducted a series of ordinary least squares regressions to investigate independent and joint associations of nonstandard schedules and variable shifts with child outcomes, parental psychological well-being, and regularity of mealtimes. To examine independent concurrent associations of nonstandard schedules and variable shifts with child and parent outcomes, we regressed each

outcome assessed at the 2-year follow-up on two dichotomous variables representing whether parents worked nonstandard schedules or variable shifts. To examine joint concurrent associations of nonstandard schedules and variable shifts with child and parent outcomes, we regressed each outcome at the 2-year follow-up on three dummy variables representing whether parents worked fixed nonstandard schedules, variable standard schedules, or variable nonstandard schedules. This allowed us to examine mean differences in child and parent outcomes as a function of parental work schedules.

Because the potential for reverse causality exists when relating parental work schedules to concurrent child outcomes, we also examined lagged associations of parental work schedules predicting parental psychological well-being, regularity of family mealtimes, and child outcomes at the 5-year follow-up, controlling for measures of family functioning and child well-being at the 2-year follow-up. Including such measures at the 2-year follow-up in each regression allowed us to control for the potential influence of these aspects of family functioning and children's well-being that may also be correlated with parents' work schedules. These analyses tested whether changes in children's school achievement and behavioral outcomes, parental psychological well-being, and regularity of family mealtimes were related to parents' work schedules at the 2-year follow-up. To investigate the independent lagged associations of nonstandard schedules and variable shifts, we regressed each outcome at the 5-year follow-up on the same outcome measured at the 2-year follow-up as well as the two dichotomous variables representing whether parents worked nonstandard schedules or variable shifts at the 2-year follow-up. We conducted a similar set of analyses to investigate joint lagged associations of nonstandard schedules and variable shifts with parental psychological well-being, regularity of family mealtimes, and child outcomes at the 5-year follow-up using the three dummy variables representing the joint categories of parental employment on fixed nonstandard schedules, variable standard schedules, and variable nonstandard schedules.

Separate analyses were conducted for each outcome measure of interest. The omitted category for all analyses was fixed standard schedules. All of the analyses adjusted for differences in background, family, and human capital characteristics at baseline as well as total number of hours worked and one dummy variable representing no work in the past week at the 2-year follow-up. The Stata (Version 6) software package was used; Huber-White standard errors (Huber, 1967; White, 1980, 1982) were used to adjust for nonindependence among error terms for siblings.

We present 95% confidence intervals, standard errors, and standardized regression coefficients for estimates of the associations of work schedules with each outcome. We used an alpha level of .05 (two-tailed) to interpret statistically significant associations. We report standardized regression coefficients as a means of interpreting the magnitude of associations and confidence intervals to discuss the precision of our estimates.

In order to establish indirect associations of work schedules with achievement and behavioral outcomes at the 2- and 5-year follow-ups through parental stress, parental time pressure, and regularity of family mealtimes, we used nonexperimental methods for testing mediation (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Shrout & Bolger, 2002). Several conditions for mediation had to be met: (a) Work schedules had to be significantly associated with the potential mediator; (b) adjusting for differences in

work schedules, the potential mediator had to be significantly associated with the child outcome measure; and (c) the association of work schedules with the child outcome had to change substantially as a result of adding the potential mediator to the model. The overall significance of a mediated association was tested by determining whether the product of the association from a parent's work schedule to a mediator and the mediator to the outcome was significantly different from 0 (MacKinnon et al., 2002).

Results

Descriptive Statistics

Table 1 presents descriptive statistics for the independent variables in this sample. For the total sample, 68% of parents ($n = 396$) were employed in the week prior to the follow-up interview. Considering only those parents who were employed, parents worked an average of 40.5 hr, and about 62% of parents ($n = 246$) worked 40 hr or more in the prior week. About 55% of parents ($n = 219$) worked schedules other than fixed standard schedules. Approximately 40% of employed parents ($n = 158$) worked some nonstandard schedules, with about 7% of employed parents ($n = 28$) exclusively working hours that fell during nonstandard times. On average, employed parents worked 17.5 nonstandard hours, with 9.2 of these hours falling between 4 p.m. and 12 a.m., 4.6 of these hours falling between 12 a.m. and 8 a.m., and 3.7 of these hours falling on weekends. Finally, 29% of employed parents ($n = 116$) reported having day-to-day variability in their work hours, with roughly half of these parents working variable shifts that included nonstandard hours. Correlations among measures of parental work schedules for the sample of parents who were employed at the 2-year follow-up are shown in Table 2.

Multivariate Analyses

Independent associations of nonstandard schedules and variable shifts with child outcomes, parental psychological well-being, and family mealtimes at 2-year follow-up. First, we examined independent concurrent associations of nonstandard schedules and variable shifts with teacher- and parent-reported school achievement and behavior problems at the 2-year follow-up. We found no significant associations.

Next, we examined independent concurrent associations of working nonstandard schedules or variable shifts with parental stress, parental perceived time pressure, and regularity of family mealtimes. Comparisons of levels of parental stress between parents who worked nonstandard schedules or variable shifts and those who worked fixed standard schedules did not yield significant differences. Parents who worked variable shifts reported less regularity in their family mealtimes than those who worked fixed standard schedules ($B = -0.40$, $\beta = -.19$, $p < .01$). The magnitude of this association was modest. Parents who worked nonstandard schedules reported feeling more time pressure than did those who worked fixed standard schedules ($B = 0.34$, $\beta = -.16$, $p < .01$). Again, the magnitude of this association was quite small.

Joint associations of nonstandard schedules and variable shifts with child outcomes, parental psychological well-being, and family mealtimes at 2-year follow-up. Table 3 shows the results of analyses when teacher- and parent-reported school achievement and behavior problems at the 2-year follow-up were regressed on

Table 2
Zero-Order Correlations Among Measures of Parental Work Schedules at 2-Year Follow-Up

Variable	Total work hours	Fixed standard schedule	Variable standard schedule	Nonstandard schedule	Fixed nonstandard schedule	Variable nonstandard schedule	Variable shifts
Total work hours	—						
Fixed standard schedule	.34	—					
Variable standard schedule	.02	-.38	—				
Nonstandard schedule	-.36	-.73	-.35	—			
Fixed nonstandard schedule	-.27	-.53	-.25	.73	—		
Variable nonstandard schedule	-.17	-.36	-.17	.49	-.24	—	
Variable shifts	-.11	-.58	.66	.10	-.38	.62	—

the work schedule variables representing fixed nonstandard, variable standard, and variable nonstandard schedules.

Results for the joint associations of nonstandard schedules and variable shifts with teacher-reported school engagement and performance at the 2-year follow-up are shown in the first and second columns of Table 3. Recall that all coefficients are in comparison to fixed standard schedules. Controlling for covariates, teachers reported that children were less engaged in school when parents worked variable nonstandard schedules ($B = -0.49, \beta = -.13, p < .05$). Teachers also reported that children performed worse in school when their parents worked variable nonstandard schedules ($B = -0.55, \beta = -.15, p < .01$). The magnitudes of these associations were modest.

The third and fourth columns of Table 3 report the joint associations of nonstandard schedules and variable shifts with teacher-reported behavior problems at the 2-year follow-up. Teachers reported

that children showed more externalizing behavior problems when parents worked variable nonstandard schedules ($B = 0.50, \beta = .15, p < .05$). The remaining work schedule comparisons on teacher-reported child outcomes did not yield significant differences.

The remaining columns of Table 3 show the results of the joint associations of nonstandard schedules and variable shifts predicting parent-reported child outcomes at the 2-year follow-up. None of the joint associations of nonstandard schedules and variable shifts with parent-reported school performance or externalizing behavior problems at the 2-year follow-up were significant. However, contrary to expectations, parents reported that their children showed fewer internalizing behavior problems when they worked variable nonstandard schedules ($B = -0.35, \beta = -.13, p < .05$), though the magnitude of this association was small.

Table 4 shows the results of the analysis models predicting parental stress, parental perceived time pressure, and regularity of

Table 3
Joint Associations of Nonstandard Schedules and Variable Shifts With Teacher- and Parent-Reported Child Outcomes at 2-Year Follow-Up

Work schedule	Teacher-reported child outcome											
	School engagement			School performance			Externalizing behaviors			Internalizing behaviors		
	$B \pm 95\% \text{ CI}$	SE	β	$B \pm 95\% \text{ CI}$	SE	β	$B \pm 95\% \text{ CI}$	SE	β	$B \pm 95\% \text{ CI}$	SE	β
Variable standard	0.30 [†] ± 0.33	0.17	.10	0.03 ± 0.35	0.18	.01	-0.13 ± 0.27	0.14	-.05	0.14 ± 0.24	0.12	.08
Fixed nonstandard	-0.01 ± 0.33	0.17	-.01	0.00 ± 0.29	0.15	.00	-0.10 ± 0.25	0.13	-.05	-0.12 ± 0.20	0.10	-.07
Variable nonstandard	-0.49* ± 0.46	0.23	-.13	-0.55** ± 0.39	0.20	-.15	0.50* ± 0.47	0.24	.15	0.04 ± 0.25	0.13	.02
R^2	.18			.11			.16			.09		
Work schedule	Parent-reported child outcome											
	School performance			Externalizing behaviors			Internalizing behaviors					
	$B \pm 95\% \text{ CI}$	SE	β	$B \pm 95\% \text{ CI}$	SE	β	$B \pm 95\% \text{ CI}$	SE	β			
Variable standard schedule	-0.17 ± 0.33	0.17	-.05	0.01 ± 0.25	0.13	.00	-0.13 ± 0.24	0.12	-.06			
Fixed nonstandard schedule	0.16 ± 0.13	0.14	.06	0.03 ± 0.25	0.13	.01	-0.20 ± 0.24	0.12	-.10			
Variable nonstandard schedule	-0.23 ± 0.39	0.20	-.05	0.07 ± 0.33	0.17	.02	-0.35* ± 0.31	0.16	-.13			
R^2	.13			.07			.11					

Note. $N = 668$ children. The reference category for work schedule comparisons is fixed standard schedules at the 2-year follow-up. Analyses control for total work hours, whether the parent was working at the 2-year follow-up, and the following measures at baseline: parent's gender, age, and race/ethnicity; single-parent status; presence of three or more children in household; presence of child less than 2 years old; receipt of high school diploma/GED; any full-time work in prior year; access to a car; current Aid to Families with Dependent Children receipt; prior earnings; and child's sex and age. CI = confidence interval.

[†] $p < .10$. * $p < .05$. ** $p < .01$.

Table 4
Joint Associations of Nonstandard Schedules and Variable Shifts With Parental Psychological Well-Being and Regularity of Family Mealtimes at 2-Year Follow-Up

Work schedule	Parental stress			Parental time pressure			Regularity of mealtime		
	<i>B</i> ± 95% CI	<i>SE</i>	β	<i>B</i> ± 95% CI	<i>SE</i>	β	<i>B</i> ± 95% CI	<i>SE</i>	β
Variable standard	0.05 ± 0.33	0.17	.02	-0.16 ± 0.27	0.14	-.06	-.42** ± .27	0.14	-.16
Fixed nonstandard	0.16 ± 0.35	0.18	.06	0.37** ± 0.27	0.14	.15	-.03 ± .27	0.14	-.02
Variable nonstandard	0.19 ± 0.45	0.23	.05	0.10 ± 0.35	0.18	.03	-.40* ± .35	0.18	-.13
<i>R</i> ²	.08			.25			.15		

Note. *N* = 581 families. The reference category for work schedule comparisons is fixed standard schedules at the 2-year follow-up. Analyses control for total work hours, whether the parent was working at the 2-year follow-up, and the following measures at baseline: parent's gender, age, and race/ethnicity; single-parent status; presence of three or more children in household; presence of child less than 2 years old; receipt of high school diploma/GED; any full-time work in prior year; access to a car; current Aid to Families with Dependent Children receipt; and prior earnings. CI = confidence interval.

* *p* < .05. ** *p* < .01.

family mealtimes at the 2-year follow-up when parents worked variable standard, fixed nonstandard, or variable nonstandard schedules as opposed to fixed standard schedules. No mean differences in parental stress were found. However, fixed nonstandard schedules were associated with higher perceived time pressure ($B = 0.37$, $\beta = .15$, $p < .01$). The results also reiterate our earlier findings regarding the independent associations of variable shifts predicting the regularity of family mealtimes; parents who worked variable shifts, either at standard ($B = -0.42$, $\beta = -.16$, $p < .01$) or nonstandard times ($B = -0.40$, $\beta = -.13$, $p < .05$), reported less regularity in their family mealtimes. The magnitudes of these associations were fairly modest.

Independent associations of nonstandard schedules and variable shifts with child outcomes, parental psychological well-being, and family mealtimes at 5-year follow-up. Table 5 shows the results of the analyses when 5-year teacher- and parent-reported school performance and behavior problems were regressed on parents' work schedules at the 2-year follow-up, controlling for 2-year child outcomes. No significant independent lagged associations of working nonstandard schedules or variable shifts with teacher-reported school performance and behavior problems were found.

No significant independent lagged associations of nonstandard schedules with any parent-reported outcomes were found at the 5-year follow-up. Variable shifts were also not related to changes in parent-reported school performance or externalizing behavior problems over time. However, variable shifts had independent positive associations with growth in parent-reported school achievement over time ($B = 0.33$, $\beta = .12$, $p < .01$).

Nonstandard schedules or variable shifts had no independent lagged associations with parental time pressure, stress, or regularity of family mealtimes at the 5-year follow-up.

Joint associations of nonstandard schedules and variable shifts with child outcomes, parental psychological well-being, and family mealtimes at 5-year follow-up. Table 6 shows the results of the analyses in which we regressed 5-year teacher- and parent-reported school performance and behavior problems on the joint work schedule categories representing the interaction of nonstandard schedules and variable shifts, controlling for 2-year child outcomes. We found no significant joint associations of nonstandard schedules and variable shifts with teacher-reported outcomes at the 5-year follow-up.

Turning to parent-reported outcomes at the 5-year follow-up, having worked fixed nonstandard schedules was associated with decreases in parent-reported school performance over time ($B = -0.35$, $\beta = -.12$, $p < .05$). No significant joint lagged associations with parent-reported behavior problems were found.

No significant joint lagged associations of nonstandard schedules and variable shifts with changes in parental stress, parental perceived time pressure, or regularity of family mealtimes at the 5-year follow-up were found.

Evidence of mediation at 2- and 5-year follow-ups. Our analyses exploring mediation of the independent and joint associations of work schedules with child outcomes at the 2- and 5-year follow-ups through aspects of parental psychological well-being and regularity of family mealtimes yielded little evidence of mediation.

First, we attempted to mediate the significant joint concurrent associations of variable nonstandard schedules with teacher-reported school engagement, school performance, and externalizing behavior problems at the 2-year follow-up. Only the regularity of family mealtimes at the 2-year follow-up was significantly associated with variable nonstandard schedules. However, regularity of family mealtimes at the 2-year follow-up was not significantly related to any of the 2-year teacher-reported child outcomes.

Next, we examined whether parental stress, parental perceived time pressure, or regularity of family mealtimes at the 2-year follow-up mediated the lagged associations of variable shifts with parent-reported school performance at the 5-year follow-up. Variable shifts were associated with more irregularity in family mealtimes at the 2-year follow-up; however, regularity in family mealtimes was not significantly associated with growth in parent-reported school performance at the 5-year follow-up.

Finally, we attempted to mediate the lagged association of fixed nonstandard schedules with parent-reported school performance at the 5-year follow-up through parental perceived time pressure. Recall that fixed nonstandard schedules were associated with higher levels of perceived time pressure at the 2-year follow-up, but no other significant differences on parental stress and regularity of family routines were found. Parental time pressure at the 2-year follow-up also was related to decreases in parent-reported school performance over time ($B = -0.12$, $\beta = -.10$, $p < .05$). However, the indirect association of fixed nonstandard schedules

Table 5
Independent Associations of Nonstandard Schedules and Variable Shifts With Teacher- and Parent-Reported Child Outcomes at 5-Year Follow-Up

Variable	Child outcome									
	School performance			Externalizing behaviors			Internalizing behaviors			
	<i>B</i> ± 95% CI	<i>SE</i>	β	<i>B</i> ± 95% CI	<i>SE</i>	β	<i>B</i> ± 95% CI	<i>SE</i>	β	
Teacher reported										
Control for 2-year child outcome	0.54*** ± 0.14	0.07	.48	0.39*** ± 0.12	0.06	.39	0.31*** ± 0.16	0.08	.27	
Work schedule at 2-year follow-up										
Nonstandard	−0.02 ± 0.41	0.21	−.01	−0.14 ± 0.33	0.17	−.07	−0.10 ± 0.27	0.14	−.06	
Variable shifts	−0.03 ± 0.35	0.18	−.01	0.18 ± 0.33	0.17	.08	0.17 ± 0.24	0.12	.10	
<i>R</i> ²	.32			.24			.16			
Parent reported										
Control for 2-year child outcome	0.38*** ± 0.08	0.04	.38	0.45*** ± 0.10	0.05	.47	0.30*** ± 0.10	0.05	.36	
Work schedule at 2-year follow-up										
Nonstandard	−0.23 [†] ± 0.25	0.13	−.09	0.01 ± 0.22	0.11	.01	0.07 ± 0.20	0.10	.05	
Variable shifts	0.33** ± 0.24	0.12	.12	−0.04 ± 0.20	0.10	−.02	−0.09 ± 0.18	0.09	−.06	
<i>R</i> ²	.24			.29			.22			

Note. *N*s = 245 (children with valid teacher reports) and 529 (children with valid parent reports) at the 5-year follow-up who were between the ages of 5 and 12 years at the 2-year follow-up and between the ages of 6 and 16 years at the 5-year follow-up. The reference category for work schedule comparisons is fixed standard schedules at the 2-year follow-up. Analyses control for total work hours, whether the parent was working at the 2-year follow-up, and the following measures at baseline: parent's gender, age, and race/ethnicity; single-parent status; presence of three or more children in household; presence of child less than 2 years old; receipt of high school diploma/GED; any full-time work in prior year; access to a car; current Aid to Families with Dependent Children receipt; prior earnings; and child's sex and age. CI = confidence interval.

[†] *p* < .10. ** *p* < .01. *** *p* < .001.

with decreases in parent-reported school performance through parental perceived time pressure was marginally significant ($B = -0.04$, $\beta = -.04$, $p < .10$), suggesting that parental perceived time pressure is not a key mediator of this relationship.

Additional analyses. Differences between those who did and did not work nonstandard schedules or variable shifts could shape the associations of work schedules with child outcomes. To explore this possibility, we examined the associations of baseline characteristics with parental work schedules. We found that male parents and parents who had received AFDC as children were more likely to work nonstandard schedules, whereas Hispanic parents were less likely to work such schedules; and single parents and parents with access to a car at baseline were more likely to work variable shifts, whereas parents with a high school diploma or GED were less likely to work variable shifts (the analyses are available from the authors on request). The associations of nonstandard schedules and variable shifts with child outcomes held up after these differences in baseline characteristics were controlled for statistically.

An array of potentially confounding variables at the 2-year follow-up—such as seasonal variability in work schedules, parental depression, perceived job-quality characteristics, job instability (e.g., number of jobs, average job duration) over the follow-up period, length of commute, and indicators of economic well-being (e.g., income, welfare receipt, earnings)—could not only influence the schedules that parents worked but also affect the extent to which work schedules influenced child well-being. To test this possibility, we took the additional step of testing these associations with this more comprehensive set of possible confounding factors

and found that the significant associations between work schedules and child outcomes remained (the analyses are available from the authors on request).

It is possible that our point-in-time measures of work schedules did not accurately reflect parental work schedules over time and, therefore, limited the extent to which we were able to detect differences in children's development as a function of parental work schedules. To explore this issue, we examined whether our point-in-time measures of work schedules were related to longer term work experiences using longitudinal retrospective reports of parental start and end dates for each job held, for up to six jobs, over the 2 years following random assignment. We constructed variables representing the average number of months that jobs lasted and the overall number of jobs held over the follow-up period. Among those parents who reported any work over the follow-up period, the average job length was 11.8 months, and the average number of jobs was 2.5, suggesting that there was a fair amount of stability in parental employment experiences in this low-income sample. When we examined whether these indicators of employment instability predicted parental work on nonstandard schedules, variable shifts, or a combination thereof, we found no significant differences. Moreover, when we examined the associations of work schedules and children's well-being, adjusting for these indicators of employment instability, the significant associations remained. These analyses (available from the authors on request) suggest that the pattern of associations between parental work schedules and child outcomes identified in the current study was not likely an artifact of job instability.

Table 6
Joint Associations of Nonstandard Schedules and Variable Shifts With Teacher- and Parent-Reported Child Outcomes at 5-Year Follow-Up

Variable	Child outcome								
	School performance			Externalizing behaviors			Internalizing behaviors		
	<i>B</i> ± 95% CI	<i>SE</i>	β	<i>B</i> ± 95% CI	<i>SE</i>	β	<i>B</i> ± 95% CI	<i>SE</i>	β
Teacher reported									
Control for 2-year child outcome	0.55*** ± 0.14	0.07	.49	0.39*** ± 0.12	0.06	.39	0.30*** ± 0.16	0.08	.27
Work schedule at 2-year follow-up									
Variable standard	-0.15 ± 0.41	0.21	-.05	0.20 ± 0.43	0.22	.08	0.23 ± 0.29	0.15	.11
Fixed nonstandard	-0.12 ± 0.47	0.24	-.04	-0.12 ± 0.37	0.19	-.05	-0.05 ± 0.31	0.16	-.02
Variable nonstandard	0.08 ± 0.57	0.29	.02	0.02 ± 0.47	0.24	.01	-0.01 ± 0.39	0.20	-.00
<i>R</i> ²	.32			.24			.17		
Parent reported									
Control for 2-year child outcome	0.38*** ± 0.08	0.04	.39	0.44*** ± 0.10	0.05	.47	0.30*** ± 0.10	0.05	.36
Work schedule at 2-year follow-up									
Variable standard	0.20 ± 0.27	0.14	.06	-0.12 ± 0.24	0.12	-.06	0.00 ± 0.22	0.11	.00
Fixed nonstandard	-0.35* ± 0.27	0.14	-.12	-0.06 ± 0.24	0.12	-.03	0.16 ± 0.22	0.11	.09
Variable nonstandard	0.24 ± 0.41	0.21	.06	0.06 ± 0.31	0.16	.02	-0.13 ± 0.31	0.16	-.05
<i>R</i> ²	.24			.29			.22		

Note. *N*s = 245 (children with valid teacher reports) and 529 (children with valid parent reports) at the 5-year follow-up who were between the ages of 5 and 12 years at the 2-year follow-up and between the ages of 6 and 16 years at the 5-year follow-up. The reference category for work schedule comparisons is fixed standard schedules at the 2-year follow-up. Analyses control for total work hours, whether the parent was working at the 2-year follow-up, and the following measures at baseline: parent's gender, age, and race/ethnicity; single-parent status; presence of three or more children in household; presence of child less than 2 years old; receipt of high school diploma/GED; any full-time work in prior year; access to a car; current Aid to Families with Dependent Children receipt; prior earnings; and child's sex and age. CI = confidence interval.
 * *p* < .05. *** *p* < .001.

Finally, it could be that participation in the New Hope Project benefited some parents by attenuating the potential ill effects of nonstandard schedules or variable shifts. To explore this possibility, we reestimated the associations of nonstandard schedules and variable shifts separately for families in the experimental and control groups. Though the significant associations tended to be more pronounced among the experimental group, these supplemental analyses did not suggest that the pattern of associations between work schedules and child outcomes differed for these two groups (the analyses are available from the authors on request).

Discussion

The current study examined independent and joint associations of nonstandard schedules and variable shifts with parental psychological well-being, family functioning, and children's school achievement and behavioral adjustment among low-income families. A nuanced picture regarding the associations of nonstandard schedules and variable shifts with child development emerged in this low-income sample. Our findings generally do not support hypotheses that working nonstandard schedules or variable shifts per se pose pervasive developmental risks for children in low-income families. We found some evidence to suggest that fixed nonstandard schedules were associated with subsequent decreases in children's school performance, whereas working variable shifts was associated with subsequent increases in children's school performance, according to parent reports. Our results, however, reveal that working a *combination* of nonstandard schedules and

variable shifts may have short-term negative consequences for children's school performance and externalizing behaviors in low-income families.

Fixed nonstandard schedules were not concurrently related with children's teacher-reported school achievement behavioral adjustment. Fixed nonstandard schedules were associated with decreases in parent-reported school performance over time. These findings suggest that there could be potential longer term negative ramifications of fixed nonstandard schedules. Yet the effect size for this association was small, indicating that the harm of working nonstandard schedules is modest. In light of this study's lack of other independent concurrent or lagged associations of nonstandard schedules alone or on fixed shifts with other aspects of children's school achievement and behavioral adjustment, parental psychological well-being, and family functioning, conclusions of substantial negative effects of nonstandard schedules generally were not supported.

The lack of overall detrimental associations of nonstandard schedules with child development is noteworthy given the literature previously discussed. Bogen and Joshi (2001) found significant associations between maternal nonstandard schedules and preschool-age children's behavior problems. Yet two recent studies also failed to find negative effects of nonstandard schedules on child outcomes in samples of low-income families (Dunifon et al., 2005; Ross Phillips, 2002). This underscores the need for research in this area to better understand the impact of work schedules on parents and children in low-income families.

What factors might account for the lack of overall detrimental associations of nonstandard schedules with child outcomes in our sample of low-income families? The reasons why certain low-income parents work nonstandard schedules and the ways in which they cope with such schedules can have profound implications for parents' physical and emotional well-being and likely shape how their families and children experience work. Hsueh (in press), using data from the New Hope Ethnographic Study (NHES), illustrated that working nonstandard schedules, in many cases, allowed mothers to support their families without financial assistance from others or governmental assistance and allowed them to maximize quality time with their children, resolving some of the hardships associated with low-wage work and single parenthood. Garey (1999), in a qualitative study of nurses working night shifts, identified mothers who enjoyed working late-night hours because such schedules allowed them to participate in their children's lives as though they were "stay-at-home" moms. Thus, even though working nonstandard hours often comes with costs, such as added fatigue and stress (Hsueh, in press), it may be that some of the parents in our low-income sample worked nonstandard schedules voluntarily, and doing so was not detrimental to their children's well-being in the short term as long as the work schedules were stable.

Interestingly, variable shifts also did not have the overall negative consequences for child development that we anticipated. Though variable shifts were associated with significantly less regularity in family mealtimes, as expected, they were positively associated with increases in parent-reported school performance over time. And variable shifts had little association with other aspects of children's well-being or parental psychological well-being. Furthermore, variable shifts during standard times of the day appeared to neither harm nor benefit children in low-income families. Variable shifts could provide parents with the flexibility to care for home and children as needed (Hsueh, in press). Working variable shifts might also allow parents to have a greater presence at home so that their children spend more time being monitored, rather than unsupervised, during the hours before and after school (Carnegie Council on Adolescent Development, 1992). Therefore, it could be that having the flexibility to negotiate work and family demands offsets the potential adverse consequences of variable work shifts for family life and child well-being.

Our findings indicate that variable shifts can pose short-term developmental risks for children when these shifts fall predominantly during nonstandard times of the day. As hypothesized, variable nonstandard schedules were associated with lower school engagement and school performance and higher levels of externalizing behavior problems, according to teachers. Though these associations were modest in magnitude, and longer term adverse consequences were not found at the 5-year follow-up, the consistency of these findings across domains of school performance and behavior problems at the 2-year follow-up is striking.

We were unable to explain what factors might account for the concurrent adverse associations of variable nonstandard schedules with child outcomes. Variable shifts could exacerbate the difficulties that parents face when working nonstandard schedules. For example, when work schedules vary unexpectedly at night, children's sleep patterns may be disrupted (Henly, 2004). As a result, children in such households may feel tired and fatigued throughout

the day. The child-care options of parents who work nonstandard schedules or variable shifts may also be constrained, in part, because center-based care is less available (Siegel & Loman, 1991). As a result, parents may be forced to rely on a less stable patchwork of care to meet their child-care needs (Henly & Lambert, 2005). Similarly, evidence from the NHES suggests that mothers often encountered greater difficulties in making child-care arrangements and experienced unwanted instability in their incomes when their work schedules varied unexpectedly (Hsueh, in press; Lowe & Weisner, 2004).

Somewhat surprisingly, the pattern of these concurrent associations of variable nonstandard schedules was not consistent across teacher- and parent-reported child outcomes. Variable nonstandard schedules were associated with lower parent-reported internalizing behavior problems, and no other significant associations with parent-reported school performance and behavioral adjustment were found. Why might parents and teachers have disagreed about how children were faring when parents worked variable shifts at nonstandard times? Modest correlations between parent- and teacher-reported outcomes might account for disparities in the associations of work schedules with child well-being, depending on the source of information. Moreover, as discussed earlier, parents' reports of children's well-being were likely influenced by the reasons that they chose to work particular schedules in ways that teachers' reports were not.

How can the concurrent and lagged findings (the short-term worrisome risks associated with variable nonstandard shifts and the longer term negative findings of fixed nonstandard schedules) be reconciled? Sparse evidence in the literature exists about the short-term and longer term consequences of nonstandard hours and variable shifts. Prior research has also provided very little evidence regarding the stability of parental work schedules over time. It may be that chronic nonstandard schedules experienced over periods of years have different associations with family processes and child development. For example, nonstandard schedules that are chronically stressful and taxing over periods of time may have long-term negative consequences for children. In contrast, the immediate financial benefits of newly entering a job with fixed nonstandard schedules may outweigh any psychological costs. Only when nonstandard schedules are coupled with variable shifts are the immediate stressors of such schedules apparent.

In the current study, parents worked 40.5 hr per week, on average, with about 62% of parents working 40 hr or more per week. This estimate is very similar to, but slightly higher than, national estimates of the hours worked among low-income families during the late 1990s. For example, estimates from the 1997 National Survey of America's Families showed that a little over 50% of primary workers in low-income working families typically worked full-time, year-round—defined as working 2,080 hours (roughly 40 hr per week), 52 weeks a year (Acs, Ross Phillips, & McKenzie, 2000). This suggests that differences in the prevalence of particular work schedules between this study's sample and low-income families more broadly were not likely contributors to the pattern of associations identified here.

Some limitations of this study should be noted. Given the constraints of the data and the lack of strong exogenous predictors of parental work schedules, we were unable to use more complex estimation strategies, such as propensity score or instrumental variables analysis, to address issues of causality or to account for

unobserved differences between those who did and did not work nonstandard schedules or variable shifts. The temporal ordering of the major study variables also precludes us from drawing causal inferences regarding the effects of nonstandard schedules and variable shifts on child development. Though we controlled for demographic characteristics, parental mental health, employment and job characteristics, and income, which might seriously bias our estimates, and examined lagged associations of nonstandard schedules and variable shifts with child outcomes across a 3-year period to explore issues of causality and directionality, these areas should be investigated further in future studies.

Our measures of nonstandard schedules and variable shifts were derived from point-in-time assessments of parental work schedules, and the extent to which these measures reflect work schedules over time is not clear. In supplemental analyses, we found that job instability and long-term work experiences were not likely contributors to the pattern of associations of work schedules with child outcomes identified in the current study. Nonetheless, a closer examination of the effects of parental work schedules using longitudinal measures is warranted.

In the current study, we explored several factors that might account for the associations of parental work schedules with children's development. However, we were unable to identify the processes that account for the associations between work schedules and child well-being. It is possible that our measures of the hypothesized mediators did not adequately capture the constructs of interest or how low-income families experienced work schedules over time. There may be other parental beliefs, expectations, occupational conditions, and other family processes—such as parental supervision and monitoring, child care arrangements, and children's extracurricular activities—that are important to investigate in order to truly understand the links between work schedules and child well-being among low-income families.

Finally, our sample consisted primarily of poor, single-mother households in an evaluation of an antipoverty and employment program. Although our sample was similar in many ways to the broader population of low-income families, the extent to which our findings can be generalized to other populations warrants further study. In our sample, some of the groups that worked particular combinations of nonstandard schedules and variable shifts were quite small, which could contribute to the unreliability of our estimates. Though we believe that the hypotheses in the current study are theoretically well justified, a larger sample might yield different results.

The issues raised in this study highlight new directions for researchers and relevant considerations for policymakers. Our findings draw greater attention to the developmental risks for low-income children when their parents work a combination of nonstandard schedules and variable shifts. As the 24/7 economy becomes ever more the norm for low-income families in the United States, a better understanding is needed of how employment at nonstandard times or on variable shifts affects the lives of children.

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