Nonstandard Work Schedules, Perceived Family Well-Being, and Daily Stressors

Kelly D. Davis, **W. Benjamin Goodman**, **Amy E. Pirretti**, and **David M. Almeida**
*Pennsylvania State University, 210 Beecher-Dock House, University Park, PA 16802
(kdavis @psu.edu)*

Abstract

Data from two studies assessed the effects of nonstandard work schedules on perceived family well-being and daily stressors. Study 1, using a sample of employed, married adults aged 25 – 74 ($n =$ 1,166) from the National Survey of Midlife in the United States, showed that night work was associated with perceptions of greater marital instability, negative family-work, and work-family spillover than weekend or daytime work. In Study 2, with a subsample of adults ($n =$ 458) who participated in the National Study of Daily Experiences, weekend workers reported more daily work stressors than weekday workers. Several sociodemographic variables were tested as moderators. Both studies demonstrated that nonstandard work schedules place a strain on working, married adults at the global and daily level.

Keywords

The United States' transformation into a 24-hours-a-day-and-7-days-a-week global economy in which business occurs around the clock is increasing the need for a larger workforce willing to work nonstandard schedules (Presser, 2003). Nonstandard schedules (e.g., night, afternoon, weekend, rotating shifts) have increased in recent years; according to a 2001 United States Bureau of Labor estimate, over 15 million full-time wage and salary employees work an alternate shift (U.S. Department of Labor, 2001). Given the continual growth of shift workers in the labor force, it is critical that researchers improve their understanding of what nonstandard schedules mean for the quality of family life in order to inform workplace policies. Most noticeably, Presser has begun to fill this gap in the literature vis-à-vis the challenges individuals and families face when one or more family members has a nonstandard schedule. Nevertheless, more research is still needed to understand how nonstandard schedules relate to individuals' perceptions of the compatibility between work and family demands.

Guided by ecological systems theory (Bronfenbrenner, 1979), which recognizes the interrelatedness of the multiple environments in which human development takes place, we examined how work schedules were linked to home life using data from two studies: Study 1 refers to our analyses using data from the Midlife in the United States (MIDUS) study, and Study 2 refers to our analyses using data from the National Study of Daily Experiences (NSDE), an in-depth study of MIDUS participants. We restricted the samples to employed, married adults, because our main focus was testing the associations between work and indicators of marriage and family life. For Study 1, we tested the association between work schedules (i.e., night, weekend, day) and perceptions of marital instability and work-family spillover. *Marital*

instability, as operationalized here, was indicated by reports of greater conflict and likelihood of separation or divorce. We also tested the link between work schedules and four aspects of w*ork-family spillover* — the degree to which negative or positive mood, skills, and experiences at work reverberate to experiences at home (or vice versa; Staines, 1980). For Study 2, we moved from a global to micro analysis by assessing differences in daily work and family stressors experienced by weekday and weekend workers over 8 consecutive days. For both studies, we considered the importance of sociodemographic and life course variables.

Work Schedules and Perceptions of Marital Instability

Over one fourth of dual-earner couples have at least one spouse who works a nonstandard shift (Presser, 2003). For many couples trying to balance work and family, *the number of hours* spouses are working per week *and which hours* spouses are working may have consequences for individuals' ability to spend time with their spouses. For example, evening and night workers may have difficulty being a companion to their spouses because they are absent from home at times when interaction and shared activities commonly occur (Mott, Mann, McLoughlin, & Warwick, 1965). Dual-earner couples with one spouse working a nonstandard shift have reported lower marital quality (White & Keith, 1990) and have higher rates of separation or divorce (Presser). Night work may be particularly straining on the marriage if the spouse has to bear the brunt of child care and housework. Interestingly, however, weekend employment has not been linked to marital instability for couples with or without children (Presser). On the basis of the extant literature, it appears that night work may be more detrimental than weekend work in terms of marital outcomes.

Although several studies have investigated the implications of atypical work schedules for marital stability, few studies have used nationally representative samples (for an exception, see Presser, 2003). Accordingly, a goal of Study 1 was to replicate using a nationally representative sample the finding that compared to daytime and weekend work, night work is associated with perceptions of greater marital instability.

Work Schedules and Perceptions of Work-family Spillover

To date, few studies have examined the association between having a nonstandard work schedule and perceptions of the degree to which physical (e.g., fatigue) or psychological effects (e.g., mood, stress) from one sphere "spill over" into another sphere. Although work-family spillover is a multidimensional construct, the literature in the work and family field has focused on some dimensions more than others. First, work-family spillover has been shown to be bidirectional: Work can influence family life (i.e., work-family spillover), and family can influence work (i.e., family-work spillover; Crouter, 1984). For example, fatigue after a night shift may spill over to the home sphere by making the shift worker irritable around his or her spouse (negative work-family spillover). In the reverse direction, negative mood from arguing with one's spouse may spill over to the workplace by making the worker more irritable and less cooperative with colleagues (negative family-work spillover). Controlling for demographic characteristics, Grosswald (2003) found that among workers with families, having a nonstandard work schedule was positively associated with negative work-family spillover. On the basis of the ecological framework, we recognized the reciprocal nature of the two spheres and accordingly assessed both directions of work-family spillover using another national data set.

Second, spillover can be both positive and negative, but there is a history of viewing the relation between work and family as "conflict ridden" and, as such, positive spillover has been "the ignored side of spillover" (Kirchmeyer, 1992, p. 231). Recently, Greenhaus and Powell (2006) proposed a theory of work-family enrichment, a concept synonymous with positive work-family spillover, which states that participation in one role can enrich the quality of life

in another role. Examples of enrichment include using skills (e.g., time management) learned at work in the home, bringing a positive mood and energy from one place to another, and using networks (social capital) from work to assist family members.

To date, studies of shift work have measured conflict between work and family and neglected positive spillover. Although acknowledging that most of the evidence on shift work heretofore supports the link with poor outcomes, there is some research pointing to the adaptive strategies shift work can create for some families, such as parents having more time for their children when they work at night (Presser, 2003). Another hint that there may be some positive influences of shift work on home life is Melbin's (1978) observation that nighttimers form a sense of camaraderie due to their relatively small number compared to daytimers and similar lifestyle. Thus, shift work, particularly night shifts, may allow individuals to feel a sense of belonging to a group and enjoy the company of coworkers during nonpeak hours or times of less supervision. These positive feelings may then transfer to interactions with spouses, children, or friends. Although shift work may be related to positive spillover, this may be true only under certain conditions, such as the type of job held. For example, helping patients as a nurse versus doing manual labor all night may be related to more positive spillover (better mood, more energy at home) given the altruistic nature of this job and perhaps because it is less physically demanding than is a manual labor job. Considering the opposite direction — from family to work — it is possible that family experiences, such as having a spouse who is supportive and understanding of the nature of shift work, may improve one's morale at work (see Repetti, 1989). Also possible, however, is that family may not positively or negatively affect work if individuals' schedules preclude them from being around family in the first place. Given the lack of research examining positive spillover as well as spillover in both directions, we considered these analyses more exploratory than hypothesis testing.

Work Schedules and Daily Work and Family Stressors

The primary goal of Study 2 was to move from a global perspective to a microlevel perspective. The traditional approach of work and family research has been aimed at understanding how people globally feel about work and family demands. Although global reports are useful, this approach measures experiences as relatively static phenomena. Understanding how work and family demands fluctuate at a microlevel may allow researchers and policymakers to understand more clearly the temporal rhythms of work and family in order to create better supports for working families (Almeida, 2004; Bolger, DeLongis, Kessler, & Wethington, 1989; Repetti, 1989). Furthermore, a microlevel assessment, such as a daily diary approach, permits between- and within-individual analyses of how nonstandard work schedules unfold day to day.

To our knowledge, no study has examined nonstandard work schedules in relation to daily work and family stressors, with the exception of work by Almeida (2004), who compared weekend (weekend only or weekday plus weekend hours) and weekday workers on the amount of time they spent with their children. Using data from the National Study of Daily Experiences (also used in the present study), Almeida (2004) found that male weekend workers were almost twice as likely to report family-related disruptions at work as weekday workers. Accordingly, we expected that weekend workers would report more work and family stressors than weekday workers.

Sociodemographic and Life Course Characteristics

For both Study 1 and Study 2, we considered the confounding effects of sociodemographic and life course characteristics in the association between work schedules and the various outcomes. Presser (2003) and others have demonstrated that nonstandard work schedules are

more common in some groups than others: Shift workers tend to be younger, men, women with preschool children, less educated, non-Hispanic Blacks, and blue-collar workers with smaller incomes. Shift workers are not randomly distributed within the population and therefore may face different experiences than other workers. Controlling for these differences, we will be able to ascertain that it is the nature of the work schedule and not other potential strains that are linked to individual and family well-being indicators.

We also tested the moderating effects of marital duration and spouses' work schedules. Presser (2003) showed that marital duration moderated the relation between work schedules and marital instability such that neither spouses' work schedules predicted marital instability for couples married less than 5 years but wives' schedules predicted separation or divorce for couples married more than 5 years. Given the ecological systems framework, it also was important to capture the work characteristics of the spouse, because they too can influence individual and family outcomes. Presser found that if either spouse had a night or rotating shift, then there was evidence of lower marital quality.

Another reason to consider sociodemographic and life course variables is that, depending on the absence or presence of children, age of children, years married, and place in one's career timeline, interpretations of experiences and strategies for juggling multiple responsibilities may differ (White, 1999). Life stage also is important when examining daily data because sociodemographic factors, such as income and social networks, play a part in creating the types of daily environments with which people interact (Almeida, 2005). As such, we controlled for and tested the moderating role of age, gender, education, income, race, age of children, marital duration, work hours, job type (blue- versus white-collar), and spouse's work schedule.

Study 1

Study Goals

Study 1 had three goals pertaining to how shift work may influence home life and vice versa: (a) to replicate Presser's (2003) finding that night work is related to greater marital instability; (b) to investigate how work schedules (day, night, or weekend) are associated with perceptions of work spilling over into home life, or vice versa, and whether this spillover is positive, negative, or both; and (c) to investigate whether the associations above depend on life-course and demographic characteristics.

Method

Participants—Participants for the first set of analyses came from the MIDUS National Survey, a sample of individuals aged 25 – 74. From the total 3,034 participants who comprised the main data set, we selected individuals who were married (64% of the total) reducing our sample size to 1,943. Our second selection criterion was being employed, reducing the sample size to 1,457. The primary variable of interest was work schedules, so individuals who were missing responses for items used to create an individual's work shift were excluded ($n = 251$). To note, the group of unemployed participants with employed spouses were excluded because they had not answered the work and family questions, a key outcome measure in our analyses. Our final sample size of 1,166 included participants without missing data on any of the variables included in the models, with the exception of the spouse's work schedule, because not all spouses of participants were employed. Using t tests, we compared respondents with and without any missing data on the predictors or outcomes based on the key demographic variables and found that respondents with complete data were significantly younger, married for a shorter length of time, less likely to have children in any of the three age groups, and were less likely to be weekend workers but were more likely to be night workers. All of these variables were

included as controls in each model. More specific information on these tests can be obtained from the corresponding author.

As shown in Table 1, in Study 1 there were slightly more men than women, and the majority of participants were Caucasian and had obtained some college education. Respondents on average were 44.10 years of age (*SD* = 10.73) with a median household income of $58,000. On average, participants were married for 21.55 years (*SD* = 11.95; range 1 – 52 years). Respondents worked an average of 43.97 hours per week (*SD* = 15.72; range 2 – 142). The majority of participants worked day shifts, followed by the weekend shift and then the night shift.

Procedure—Participants were selected using a random-digit dialing procedure. Those that agreed to participate completed a telephone interview that lasted an average of 30 min and two mailed questionnaires containing questions about health and well-being.

Measures—Participants' *work schedules* were determined by three questions that asked respondents in an average week how often they worked during the day, at night, or on the weekend. Respondents indicated the frequency with which they worked each of these shifts on a 5-point scale which ranged from *four or more times per week* to *less than once a month or never*. Night and weekend work schedules were dummy coded, defining respondents as nonstandard workers if they worked at least once per week at night or on the weekend. In cases where respondents reported working multiple shifts (e.g., both day and night shifts) more than once per week, priority was given to the shifts in the following order: night shift, weekend shift, day shift.

Perception of marital instability was assessed in the mailed questionnaire with a three-item inventory of the nature and long-term stability of the respondent's current relationship. Participants responded to the first question—"During the past year, how often have you thought your relationship might be in trouble?"—with a 5-point response format (1 = *never*, 5 = *all the time*) and the second question—"What do you think the chances are that you and your partner will eventually separate?"—with a 4-point response format (1 = *very likely*, 4 = *not likely at all*). The final question asked respondents to rate (1 = *a lot*, 4 = *not at all*) "How much do you and your spouse or partner disagree on the following issues?" The issues were money, household tasks, and leisure. These items were recoded so that higher values indicated greater marital instability. For this sample, the average score was 2.36 (*SD* = 0.49, range 1 – 3.8) and reliability was .77.

Perception of work-family spillover was measured with four 4-item subscales. Respondents used a 5-point response format (1 = *all the time,* 5 = *never*) to respond; however, all items were reverse-coded and then summed so that higher numbers indicated more spillover. *Negative family-work spillover* items assessed the degree that participants perceived that their family lives negatively impacted their work during the past year (*M* = 8.40, *SD* = 2.53, α = .78). *Negative work-family spillover* questions assessed the perception of how much their employment negatively impacted their home life during the past year (*M* = 10.66, *SD* = 2.83, α = .81). *Positive family-work spillover* assessed perceptions of how much of a positive influence family has on work experiences (*M* = 13.72, *SD* = 2.97, α = .68). *Positive work-family spillover* questions assessed how much work positively influenced home life (*M* = 11.56, *SD* = 2.84, α = .70).

Life-course and background characteristics from the MIDUS study were examined. One item variables included were gender, age, and marital duration (computed by subtracting the year of marriage from the year of the study). Educational attainment was a one-item variable with 12 options (1 = *no school or some grade school,* 12 = *Ph.D., M.D., or other professional*

degree). We divided the variable into two dummy-coded variables: one representing some high school, the other indicating high school graduation or GED, and the reference group for both was some college or more. Race was a 1-item variable with six options. Given the limited variability in race, we made the variable into two categories — Caucasian and other. Three separate items were used to indicate whether they had at least one child in the specified age ranges: 0 – 6, 7 – 13, and 14 – 17. A two-category job type variable was created from 21 items representing different industries in which individuals can be employed. Industries coded as blue-collar jobs were construction, manufacturing, and transportation. Industries classified as white-collar were finance, insurance, and administration, to name a few. Spouse's work schedule was created the same way as the individual's work schedule variable using three items about the frequency with which the spouse works during the day, night, and weekend during a typical week. Work hours was constructed by summing two items reflecting number of hours worked on main job and number of hours on other jobs (if any).

Results

Correlations among the outcome variables for Study 1 ranged from .01 (*ns*) to .52 (*p* < .01; negative family-work and work-family spillover), most of which were significant. Because the outcomes were only moderately correlated and represented different phenomena, we included them separately in a series of multiple regressions. The results from the multiple regression analyses are in Table 2. Several covariates predicted the dependent variables. Marital instability was greater among women, individuals with children aged 14 – 17, and when the spouse worked at night. Negative family-work spillover was more common among women, parents, and white-collar workers. Negative work-family spillover was less common among older workers. Both types of negative spillover were less common among high-school graduates compared to workers with some college education and non-White workers but more common among participants who worked long hours. Younger workers, women, and individuals with children aged 14 – 17 reported less positive family-work spillover. Longer work hours and marriages were associated with more positive family-work spillover. Women reported more, but high school graduates reported less, positive work-family spillover. Many of these demographic and life-stage differences related to spillover are consistent with findings reported by Grzywacz, Almeida, and McDonald (2002) and indicate that perceptions of spillover and marital instability are not randomly distributed among workers.

Turning to the central focus of Study 1, night shift work was associated with more negative outcomes than were either weekend or day shifts. Compared to working a standard day shift, working at night was associated with heightened perceptions of marital instability as well as greater negative family-work and work-family spillover. Weekend work was not associated significantly with any of the five outcomes. By switching the reference group from day to weekend shifts, we found that the night shift was a greater risk factor for marital instability than was working the weekend shift ($B = 0.12, p < .05, R^2 = .09$), negative family-work spillover ($B = 0.59\ p < .05, R^2 = .12$), and negative work-family spillover ($B = 0.76, p < .01, R^2 = .15$). Neither working at night nor working on the weekends was significantly related to positive spillover. Only a small amount of variance in positive spillover (3%) was explained.

As a next step, we tested interaction effects between work schedules and the following eight sociodemographic variables in separate models: age, gender, any children aged 0 – 6, any children aged 7 – 13, any children aged 14 – 17, marital duration, work hours, and job type (Table 2). Two of 12 interactions were significant for marital stability. The association between night work and marital instability was moderated by age: Night work was significantly related to marital risk among young workers ($B = 0.25, p < .01$) but not older workers ($B = 0.04, ns$). The interaction between night work and having a child aged 0 – 6 was qualified by gender. Follow-up tests indicated that working a night shift was associated with higher levels of marital

instability for men with children 0 – 6 ($B = 0.60$, $p < .01$) but not for childless men ($B = 0.09$, ns). There was no significant difference between women with and without children aged 0 – 6.

Four of 12 interactions were significant for negative family-work spillover. Having a night shift was associated with more negative family-work spillover only when adults worked fewer work hours (less than 1 SD; $B = 1.02$, $p < .01$) but not when they worked longer hours ($B = 0.22$, ns). For men only, having a night shift and a child aged 0 – 6 predicted higher negative family-work spillover ($B = 1.84$, $p < .01$) but there was no association for childless men ($B = -0.09$, ns). Night workers with a child aged 7 – 13 predicted more negative family-work spillover ($B = 1.39$, $p < .01$), but this was not true for night workers without children in this age group ($B = -0.21$, ns). Follow-up tests for the weekend shift × children 7 – 13 were trend level or nonsignificant.

Only one interaction was significant for negative work-family spillover between night shift and job type. Specifically, night work was associated with negative work-family spillover among white-collar workers ($B = 1.32$, $p < .01$) but not among blue-collar workers ($B = .53$, ns).

None of the sociodemographic variables moderated the association between work schedules and positive family-work spillover; however, gender and type of job moderated the association with positive work-family spillover (2 interactions of 12). Among male workers, night work was associated with less positive work-family spillover ($B = -0.59$, $p = .05$), but this was not true for female workers ($B = 0.71$, ns). Night work was associated with less positive work-family spillover among blue-collar workers ($B = -0.80$, $p < .05$), but not among white-collar workers ($B = 0.24$, ns).

For a final set of analyses, we tested whether findings varied depending on spouses' employment or whether spouses worked the same nonstandard schedule as their spouse, but only the latter was a significant predictor. The only significant interaction was a weekend shift × spouses working the night shift interaction predicting positive family-work spillover (Table 2). Planned contrast tests revealed that couples with a weekend worker and a spouse who does *not* work nights had significantly higher positive family-work spillover ($M = 14.14$, $SE = 0.25$) than did couples with a weekend worker and a spouse who *does* work at night ($M = 13.27$, $SE = 0.31$), $p < .05$.

Discussion of Study 1 Findings

The purpose of Study 1 was to paint a more detailed picture of the consequences of nonstandard work schedules for individuals and relationships. The findings demonstrate that the more nonstandard a work schedule is, the more strain it may place on individuals, particularly men. Namely, night work was significantly related to perceptions of more marital instability, negative work-family spillover, and negative family-work spillover than was weekend or standard, daytime work. Furthermore, compared to daytime work, night work was associated with less positive work-family spillover among male workers.

The marital findings were mostly consistent with past research (Presser, 2003; White & Keith, 1990); working the night shift was associated with perceptions of greater marital instability, especially for younger workers. Compared to older workers, younger workers may have been married for shorter periods of time and therefore have had less time to adjust to the night shift. The night shift also may cause more strain on the marriage for younger workers than older workers with similar durations of shift work and marriage if the younger workers are more socially active. A selection effect is likely at work here too, with older night workers having greater tolerance for the nonstandard schedule and those that could not adjust having changed

jobs or schedules. Similar to Presser's findings, we did not find that weekend workers reported greater marital instability than daytime workers, lending further support that weekend work is not as disruptive for marriages as night work can be. As Mott and colleagues (1965) suggested, night work may place a strain on marriages because night workers are absent when couples, particularly couples with children, often spend intimate time together. Weekend work during daytime hours may not create the same amount of interference in fostering intimacy.

Turning to the links between work schedules and spillover, we found that night work was linked to perceptions of greater spillover of stress and fatigue to the home, replicating the finding by Grosswald (2003). Given the evidence of how night work can tax individuals mentally and physically, the finding that these feelings can transfer to the home is consistent with our hypothesis. The type of job qualified this association: Night work was associated with negative work-family spillover only among white-collar workers, not among blue-collar workers. The finding seems counterintuitive at first glance, given that blue-collar work is generally characterized by little control; however, given the high time demands of white-collar work, these pressures may be more likely to spill over to the spouse. Also, recall that the night work variable was created such that anyone who worked at night at least once a week was classified as a night worker. White-collar workers, such as those in real estate and insurance, may not be expected to work at night on a regular basis. Night work is more common among blue-collar workers, and thus being used to this schedule may mean spillover from work to home is less frequent.

We did not have specific expectations about the association between nonstandard work hours and negative family-work spillover, given the lack of research in this area. Night shift, however, was associated with more negative family-work spillover than was daytime work, but only when adults worked fewer hours. If working fewer hours is not due to a preference to work less, this may be an additional strain to the already present difficulties of working when family members are asleep. Working at night and having a child either aged 0 – 6 or 7 – 13 also predicted more negative family-work spillover; there was no association when children were in their teens. Younger children are more dependent on parents, requiring more supervision, and may be involved in more activities (school, sports, play dates) that necessitate parents driving them to and from different locations. Working at night means that individuals have to sleep during the day when these activities take place, which may be difficult with younger children in the household who may not understand the different timetable of the shift worker. Male night shift workers with young children seem especially vulnerable, evidenced by their reports of higher marital instability and negative family-work spillover. Perhaps with a young child, wives call upon them more often for help with child care when they are home, and if this detracts from sleep, the husbands may have more difficulty at work.

Although there were no direct associations between work schedules and positive spillover, significant interaction effects with gender and job type emerged. Among male workers, night work was associated with less positive work-family spillover. Perhaps given the expectation that husbands should be the breadwinners, in combination with the fact that night shift jobs are often less desirable than daytime jobs, makes it less likely that the skills and experiences at work will benefit interactions at home for males. Night work was associated with less positive work-family spillover among blue-collar workers but not among white-collar workers. Holding less prestigious, intellectually stimulating, or rewarding jobs may diminish the positive experiences carried into the family.

The findings discussed above point to the importance of considering the various life course and demographic situations of workers. Gender, having children aged 0 – 13, type of job, and spouses' schedules moderated the links between night work and perceptions of marital instability and spillover, likely due to the added strains associated with having younger children

or having jobs with particular work conditions. Using an ecological framework also was useful. We considered how the work schedule of the spouse, who is also apart of the family sphere, may be related to the outcomes. Indeed, when the spouse had a night shift and the individual had a weekend shift, the individual reported less positive family-work spillover compared to when the spouse did not have a night shift and the individual had a weekend shift. Why this particular combination, and not others, was related to less positive spillover rather than greater marital instability and more negative spillover is unclear. Rather than placing too much weight on this finding, we recommend more research assessing various combinations of couples' schedules in relation to individual and family outcomes. Understanding the schedules of both partners that comprise the family system seems important.

Weekend work was not significantly associated with any of the five outcomes in the Midlife study, and follow-ups to interactions were non-significant. Why the sparse findings with weekend work? It should be noted here that weekend work could have involved as little as one shift per week. The shifts could have lasted only a couple of hours and could have occurred during the day. Weekend work also included some workers who worked standard shifts Monday through Friday as well as those who worked only on the weekends. The measurement of weekend work may explain the lack of associations with marital instability and spillover, but it also is possible that work and family may not be interfering with one another on the weekends. Weekend workers may be able to fulfill family responsibilities during the week or they may have spouses with similar schedules who are accepting of weekend work.

Study 2

Study Goals

The purpose of Study 2 was to assess whether and how nonstandard schedules created temporal friction between work and family, moving beyond examination of work and family life as a static phenomenon to examine intraindividual variability in experience (Almeida, 2004; Bolger, Davis, & Rafaeli, 2003). The specific goals were (a) to take a diary approach to assess whether weekend or weekday workers report more daily stressors, and (b) to test life course and demographic characteristics of the workers as moderators.

Method

Participants—Data came from adults who participated in the NSDE, one of the in-depth modules from the MIDUS study. The daily sample was comprised of a random subsample of the MIDUS study participants. Of the 1,242 MIDUS participants who were contacted to participate in the Daily Experiences module, 1,031 agreed (83%). Restricting the sample to married and employed adults reduced the sample size to 495. After omitting another 37 participants who had missing values for at least one covariate included in the model, the final sample size for Study 2 was 458.

The demographic characteristics of the daily sample were comparable to the Study 1 sample. The majority of adults were Caucasian with at least some college education. Average age was 44.75 years (SD = 10.82). Median income was $57,000 and individuals had been married for 22.33 years on average (SD = 12.08). The average hours worked per week was 35.86 (SD = 17.26). Weekend workers (n = 173) worked an average of 3.27 (SD = 5.18) hours per week on the weekend.

Procedure—Approximately 8 months after participating in the MIDUS study, respondents were recruited to participate in the daily diary module. Data collection took over 1 year and consisted of 40 separate flights of phone interviews; each flight consisted of consecutive 8-day phone interviews of approximately 38 participants. Participants completed an average of seven

of the eight interviews, resulting in a total of 7,221 interviews. To control for the possible confounding between day of study and day of week, the commencement of interview flights was staggered across the day of the week. The telephone interviews included questions about daily experiences (i.e., past 24 hours), mood, physical symptoms, productivity, stressors, and time use.

Measures—To assess *work schedules*, on each study day participants were asked how many hours they worked during the previous 24 hours but not when they worked that day. Therefore we were only able to determine if individuals worked on the weekends and not if they worked at night. Thus, for the daily-level analyses, daytime workers could only be compared with adults who worked some weekend hours.

Daily stressors were assessed with the Daily Inventory of Stressful Experiences (DISE; Almeida, Wethington, & Kessler, 2002), which consists of a series of stem questions asking whether certain types of stressors happened during the previous 24 hours. Respondents were asked questions, such as, "Since (this time/we spoke) yesterday, did anything happen at work or school that most people would consider stressful?" If "yes," the interviewer asked a series of open-ended probe questions to obtain a description of the stressful event. That is, interviewers acquired a short narrative of each stressor, including the content, who was involved, and the duration of the stressor. The narratives were then content-coded, with κ reliability for investigator ratings that ranged from .66 to .95 across all codes. Daily stressors were dummy coded to indicate whether individuals reported a particular type of stressor — work, home, or spouse-related —on a given day ($0 = no$, $1 = yes$). *Work stressors* included being late, being understaffed, and making mistakes at work ($M = 0.12$, $SD = 0.33$). *Home stressors* included, but were not limited to, housework concerns, perceptions of not accomplishing enough at home, and burning dinner or breaking something ($M = 0.08$, $SD = 0.26$). *Spouse-related stressors* included having an argument with a spouse, avoiding an argument with a spouse, or something happening to the spouse that was stressful for the individual ($M = 0.09$, $SD = 0.29$).

The same *life course and background characteristics* that were examined in Study 1 were examined in Study 2, except that in Study 2 work hours were based on individuals' reports of how much time they spent working in the previous 24 hours (eight reports per individual). Hours worked on Saturday and Sunday were summed to create a weekend work hours variable.

Results

For the daily-level analyses, we investigated whether there was a difference in the frequency of three types of stressors — work, home, and spouse-related — across 8 days between weekday workers and weekend workers. Using SAS PROC MIXED, we tested these associations by including the same covariates in a series of linear mixed models with day at Level 1 and person at Level 2.

Of the three daily stressor variables, only work- and spouse-related stressors differed by weekend work status; therefore, Table 3 only presents the results of these two models. Number of work hours was a significant predictor of both stressor variables: Longer work hours predicted more work stressors but fewer spouse-related stressors. Having a child aged 7 – 13 or having a white-collar job (versus a blue-collar job) was related to fewer work stressors. Between-person analyses revealed that, even after controlling for life course and background characteristics, weekend workers reported more work stressors than did weekday workers. Weekend work did not directly predict daily spouse-related stressors after including the controls.

As we did for Study 1, we examined which of the eight (if any) covariates moderated the association between work schedule and daily stressors, and job type was the only significant moderator. There were no differences in work stressors between blue-collar weekend and weekday workers ($\gamma = .03$, *ns*); however, white-collar weekday workers reported fewer work stressors than did white-collar weekend workers ($\gamma = -.04$, $p < .05$). Predicting spousal stressors, there was no difference between weekday and weekend white-collar workers ($\gamma = -.001$, *ns*), but there was a difference between blue-collar workers on different shifts ($\gamma = -.06$, $p < .05$): Weekend blue-collar workers reported more daily spousal stressors than did weekday blue-collar workers.

Discussion

In Study 2, we further explored work and family demands experienced by utilizing a novel approach to studying work and family — diary data collected over 8 consecutive days. Analyzing stressors that occurred over a given week, we found that weekend workers reported more work stressors than did weekday workers, a finding in line with Almeida's (2004) work. These findings differed by type of job: White-collar weekday workers reported fewer work stressors than did white-collar weekend workers, and blue-collar weekend workers reported more daily spousal stressors than weekday blue-collar workers. White-collar workers who only work during the week may only work Monday through Friday because they have fewer demands. Those with more work demands and deadlines may need to work at home or in the office on the weekend to keep up. Or, if they are solely working on the weekend, they may have more work stress given the limited time to complete work tasks. This finding may not be true for blue-collar workers given that blue-collar work is often fixed term and wage payroll rather than salary. Blue-collar workers who have to work weekends may have more spouse-related stressors due to *when* they are working on the weekends or *where* they have to work. White-collar work can often be done at home, whereas blue-collar work may not necessarily be done in close proximity to the spouse. Being absent from the home may precipitate more spouse-related stressors among blue-collar workers when they have to work weekends. More research looking at fluctuations in work and home stressors at the daily level, preferably with more differentiation among the variety of work schedules (Presser, 2003), will be informative and supplement the global assessments that have dominated the field thus far.

General Discussion

By replicating and extending work schedule research, we found that night work can be particularly straining on a marriage, can create greater permeability of negative moods and fatigue between work and family, and can hinder positive experiences from transferring to the home. Compared to weekday work, working on the weekends was more stressful at work and at home with their spouse, depending on job type. Although both studies provided more information about the role of shift work in the work-family connection, we outline strengths and limitations of this study as well as provide avenues for future investigation.

Strengths and Limitations

There were a number of strengths, including the use of a national sample to represent workers of various occupations and backgrounds and the number of controls included in the analyses. We were able to test moderation with demographic and life-stage characteristics to better understand for whom perceptions of marital instability or work-family spillover were greater and for whom the frequency of daily stressors was greater among adults with different work schedules. Another strength was the consideration of the bidirectionality of spillover by including measures of work-family spillover *and* family-work spillover. Without looking at both spillover subscales, we might not have discovered that for night workers, spillover occurs in both directions. A final strength to mention is the use of a daily diary method to capture the

ebb and flow of work and family stressors, a fairly novel approach in the work schedule literature.

Unfortunately, only weekend and night shifts were considered in comparison with the standard, daytime shift, a limitation of the present analysis. As Presser (2003) and others have shown, all shifts, including afternoon, rotating, and varying, need to be evaluated, as they tend to have differential associations with family life. Because these data sets were not designed to examine work schedules, we were only able to compare night, weekend, and daytime work. Despite the fact that shift schedule had to be crudely categorized in both studies, a clear pattern emerged: Compared with working daytime schedules, working nonstandard schedules had negative implications for marriage, perceptions of work and family influencing one another, and daily work and spouse-related stressors.

A second limitation is the issue of self-report bias, as only the participants' perspective on work-family spillover and marriage was obtained. Including the spouses' perceptions could provide further insight into the processes associated with negative marital outcomes and experiences of work-family spillover for shift workers.

Finally, Study 1 data were only cross-sectional. Although Study 2 data were short-term longitudinal data, a prospective, longitudinal study would be beneficial in highlighting the antecedents and consequences of shift work for marriage, work-family spillover, and daily stressors.

Conclusion

With these limitations considered, research findings such as these should be used to inform work-place policies in businesses that rely on nonstandard work hours, so that they may consider the potential repercussions for the family that may reverberate back to the workplace in the form of reduced productivity or increased negativity. For example, workplaces may consider allowing employees more flexibility on the weekends to choose when they come in or to able to contact their families while they are working. Doing so may reduce work-related stressors for weekend workers and may have positive benefits at work. To better inform policy and meet the needs of employees, considering for whom and when in the life course having a nonstandard schedule may particularly straining is essential.

Acknowledgements

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Table 1

Comparison of Percentages of Categorical Demographic Characteristics of Study 1 ($n = 1,166$) and Study 2 ($n = 458$)

Variable	Study 1 (%)	Study 2 (%)
Male	58.49	54.02
Some high school	5.57	5.11
Graduated high school/or GED	29.59	30.29
Some college or more	64.84	64.60
Caucasian	90.82	91.92
African American	4.12	4.55
Other race or ethnicity	5.06	3.53
Children aged 0 – 6	22.56	21.94
Children aged 7 – 13	30.27	30.11
Children aged 14 – 17	22.13	21.81
Blue-collar job	35.25	32.98
White-collar job	64.75	67.02
Spouse day shift	51.11	50.25
Spouse night shift	35.25	34.28
Spouse weekend shift	13.64	15.47
Day shift	63.55	61.70
Weekend shift	21.53	38.30
Night shift	14.92	—

Table 2

Regression Coefficients From Models of Work Schedules with Perceptions of Marital Instability and Negative and Positive Work-Family Spillover (n = 1,166)

Variable	Model 1 Marital Instability		Model 2 Negative Family-Work Spillover		Model 3 Negative Work-Family Spillover		Model 4 Positive Family-Work Spillover		Model 5 Positive Work-Family Spillover	
	B	SE	B	SE	B	SE	B	SE	B	SE
Age	-.004	.005	-.04†	.02	-.07**	.02	-.06*	.02	-.02	.02
Gender[a]	.12**	.04	.47**	.16	.19	.18	-.55**	.20	.39*	.19
HS education[b]	-.02	.09	-.12	.33	-.20	.37	.08	.41	-.72†	.40
Graduated HS or GED[c]	-.04	.04	-.54**	.17	-.56**	.19	-.19	.21	-.48*	.20
Household income	-.03	.03	-.17	.12	-.05	.13	-.19	.15	.02	.14
Race[d]	.06	.06	-.73**	.25	-1.01**	.27	.60†	.30	.06	.29
Children aged 0 – 6[e]	.02	.05	.77**	.20	-.20	.22	-.09	.25	-.16	.24
Children aged 7 – 13[f]	.13**	.04	.37*	.17	.16	.18	-.40†	.20	-.28	.20
Children aged 14 – 17[g]	.18**	.05	.64**	.18	.23	.19	-.56*	.22	-.12	.21
Marital duration	-.004	.004	.01	.02	.03	.02	.04*	.02	.03	.02
Work hours	.0004	.001	.02**	.005	.05**	.01	.02*	.01	.01†	.01
Job type[h]	-.004	.04	.37*	.16	.24	.18	.16	.20	.29	.19
Spouse night shift[i]	.11**	.04	.26	.16	.31†	.17	-.15	.20	.17	.19
Spouse weekend shift[j]	.07	.06	.09	.22	.001	.24	.07	.27	.23	.26
Night shift[k]	.20**	.05	.48*	.21	.97**	.23	.02	.26	-.17	.25
Weekend shift[l]	-.02	.05	-.12	.18	.26	.20	.13	.22	-.02	.21
Night shift × age	-.01*	.01	-.03	.02	.01	.02	.05†	.02	.02	.02
Night shift × gender	-.02	.11	.14	.43	-.03	.48	.09	.53	1.07*	.51
Weekend shift × gender	.17†	.09	.36	.36	.18	.40	-.27	.44	-.46	.43
Night shift × children 0 – 6	.25*	.12	1.43**	.46	.21	.51	-.53	.57	-.30	.55
Weekend shift × children 0 – 6	.02	.11	.06	.41	-.08	.45	.18	.50	.02	.48

Variable	Model 1		Model 2		Model 3		Model 4		Model 5	
	Marital Instability		Negative Family-Work Spillover		Negative Work-Family Spillover		Positive Family-Work Spillover		Positive Work-Family Spillover	
	B	SE	B	SE	B	SE	B	SE	B	SE
Night shift × children 7 – 13	.16	.11	1.82**	.41	.45	.45	−.04	.51	.05	.49
Weekend shift × children 7 – 13	−.19†	.10	−1.03*	.38	−.48	.42	.05	.47	.14	.45
Night shift × children 14 – 17	.10	.12	.55	.47	.32	.51	.08	.58	.58	.55
Weekend shift × children 14 – 17	−.18	.11	−.55	.42	−.13	.46	.11	.51	.01	.49
Night shift × work hours	−.0004	.003	−.03*	.01	−.01	.01	−.02	.01	−.02†	.01
Night shift × job type	−.11	.10	.23	.40	.89*	.44	.13	.49	.99*	.47
Weekend shift × spouse night shift	.12	.09	.29	.36	.49	.39	−.93*	.44	−.72†	.42

Note: Each interaction term was tested in a separate model, but all models included the same covariates. Sample sizes varied slightly from model to model due to missing data in the dependent variables.

a Gender: 0 = *male*, 1 =*female*.

b HS education: 0 = *some college or more*, 1 = *less than high school education.*

c Graduated HS or GED: 0 = *some college or more*, 1 = *graduated from high school or obtained GED.*

d Race: 0 = *Caucasian*, 1 = *other.*

e Any children 0 – 6: 0 = *no children 0 – 6*, 1 = *has child or children 0 – 6.*

f Any children 7 – 13: 0 = *no children 7 – 13*, 1 = *has child or children 7 – 13.*

g Any children 14 – 17: 0 = *no children 14 –17*, 1 = *has child or children 14 – 17.*

h Job type: 0 = *blue-collar*, 1 = *white-collar.*

i Spouse night shift: 0 = *day shift*, 1 = *night shift.*

j Spouse weekend shift: 0 = *day shift*, 1 = *weekend shift.*

k Night shift: 0 = *day shift*, 1 = *night shift.*

l Weekend shift: 0 = *day shift*, 1 = *weekend shift.*

$\dagger$
$p < .10$.

$*$
$p < .05$.

$**$
$p < .01$.

Table 3

Coefficients From Multilevel Models Comparing Weekend and Weekday Workers on Daily Work and Spouse Stressors Moderated by Type of Job and Marital Duration (n = 458)

Variables	Work Stressors			Spouse Stressors		
	Coeff.	SE	t-ratio	Coeff.	SE	t-ratio
Intercept	.10[†]	.06	1.74	.08	.05	1.58
Age	.001	.002	.39	-.001	.002	-.33
Gender[a]	-.01	.02	-.62	-.02	.01	-1.33
< HS education[b]	.07[†]	.03	1.96	.03	.03	.73
Graduated HS or GED[c]	.02	.02	1.46	.01	.01	.77
Household income (log)	.01	.01	.68	-.01	.01	-0.81
Race[d]	.005	.03	.18	-.01	.02	-0.28
Children aged 0 – 6[e]	-.01	.02	-.41	-.01	.02	-0.33
Children aged 7 – 13[f]	-.04[*]	.02	-2.43	-.003	.01	-0.21
Children aged 14 – 17[g]	-.02	.02	-1.07	.001	.02	.08
Marital duration	-.001	.002	-.88	-.0004	.002	-.30
Work hours	.002[**]	.0005	3.23	-.001[**]	.0004	-2.93
Job type[h]	-.08[**]	.02	-3.24	.02	.02	.87
Spouse night shift[i]	.02	.02	1.13	-.01	.01	-.77
Spouse weekend shift[j]	.01	.02	.60	.02	.02	.93
Weekend shift[k]	-.04[*]	.02	-2.29	-.001	.02	-.06
Weekend shift × job type	.07[*]	.03	2.38	-.06[*]	.03	-2.07

[a] *Note:* Gender: 0 = *male*, 1 = *female*.

[b] < HS education: 0 = *some college or more*, 1 = *less than high school education*.

[c] Graduated HS or GED: 0 = *some college or more*, 1 = *graduated from high school or obtained GED*.

[d] Race: 0 = *Caucasian*, 1 = *other*.

[e] Any children 0 – 6: 0 = *no children 0 – 6*, 1 = *has child or children 0 – 6*.

[f] Any children 7 – 13: 0 = *no children 7 – 13*, 1 = *has child or children 7 – 13*.

[g] Any children 14 – 17: 0 = no children 14 –17, 1 = has child or children 14 – 17.

[h] Job type: 0 = blue-collar, 1 = white-collar.

[i] Spouse night shift: 0 = day shift, 1 = night shift.

[j] Spouse weekend shift: 0 = day shift, 1 = weekend shift.

[k] Night shift: 0 = day shift, 1 = night shift.

[l] Weekend shift: 0 = day shift, 1 = weekend shift.

[†] $p < .10$.

[*] $p < .05$.

[**] $p < .01$.