Gender Differences in Sleep Disruption among Retail Food Workers

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As women pursue careers while retaining primary responsibility for family life, discretionary time is an emerging arena of gender inequality in contemporary life. This study examines gender inequality in waking role obligations and the implications for differences in sleep disruption. Drawing on a sample of 583 retail food workers, who regularly worked nights and rotating schedules, we find in our multivariate modeling that women experience significantly more sleep disruption than do men. A decomposition analysis shows that almost one-half of the gender gap in sleep disruption is accounted for by gender differences in health status and various dimensions of work-family context. By implication, the remainder of the gender gap in sleep disruption is attributable to differences in responsibility for work-family obligations. Given the need for more research on how work-family conflict affects health and well-being, further research on sleep patterns is warranted.

Research shows that work demands often limit the time available for family life, community affairs, and personal interests (Hochschild 1997; Jacobs and Gerson 2004; Mattingly and Bianchi 2003; Putnam 2000). Because women's domestic responsibilities often exceed men's, women are more likely than men to curtail time in discretionary activities as the demands of work escalate (Bianchi, Robinson, and Milkie 2006; Hochschild 1989).

Sleep might be one such activity affected by meeting one's dual obligations to employers and loved ones. Indeed, the popular press reports that women are increasingly sleep-deprived as the demands of motherhood conflict with job demands (Kantrowitz 2006; Nagourney 2006). These reports imply that women's health may suffer if they intensively pursue careers but get little relief from caregiving responsibilities. If so, gender differences in sleep patterns may reveal another dimension of gender inequality that has important implications for long-term health and well-being. Such a conclusion is premature at this time, however, given the paucity of research on the social determinants of sleep regularity.

A review of the sleep literature shows that most studies are conducted by physicians who diagnose and treat sleep disorders, but who pay little attention to social influences. Another line of work shows that shift work negatively affects physical and mental health. Yet, this work either ignores sleep as an outcome, or sex-segregated samples preclude making gender comparisons of sleep patterns. Qualitative studies report that women's sleep is affected by caring for family members, but we do not know whether men's sleep is similarly affected by caregiving and job demands. To date, the sleep literature lacks

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a comprehensive study of the gendered effects of work-family obligations on sleep disruption.

This article aims to fill that gap. We draw on scholarship showing that women remain largely responsible for family life, irrespective of the intensity of their work efforts. Our working hypothesis is that gender inequality in waking role obligations will be manifested in gender differences in sleep disruption.

PRIOR RESEARCH ON SLEEP

The Medical Model of Sleep

Because sleep is a natural biological activity, most sleep studies have been conducted by physicians and biological psychologists. Fifty years ago, biological psychologists documented cycles of REM (rapid eye movement) and non-REM sleep. The brain is most active in REM sleep (stimulating cells responsible for learning and memory retention), while the body is most refreshed during the late stages of non-REM sleep (necessary for health and well-being). Medical research also documents how circadian rhythms affect sleep. As the day wears on, the body produces adenosine, a chemical compound that induces fatigue and is broken down by sleep. When sleep is curtailed one day, more adenosine in the blood often results in longer sleep the next day. In addition, after dark the body produces more melatonin, a hormone that heightens feelings of fatigue and drowsiness (for overviews of medical research on sleep, see Dzaja et al. 2005; Patlak 2005).

With regard to the risk factors for poor sleep, much research focuses on aging and its associated physical changes. For example, adolescents entering puberty and menopausal women often suffer from insomnia due to hormonal changes (Lee et al. 1990). Another body of research shows that the effectiveness of the circulatory system declines with age and poor health, and the resulting lower core body temperature produces more napping during the day and disrupted sleep at night (Patlak 2005). As for behavioral risk factors, alcohol and tobacco use are associated with light and fitful sleep, whereas exercise tends to improve sleep (Youngstedt and Kline 2006). In addition, the medical community has established a link between obesity, snoring, and sleep apnea (for an overview, see Punjabi 2008).

While the volume of sleep research has increased dramatically in the past two decades, much research is conducted in sleep clinics and hospitals, with the aim of treating sleep disorders that are more likely to affect men (Hislop and Arber 2003a). Because of such selection biases, little is known in the medical community about gender differences in *normal* sleep patterns (Driver et al. 1999). One exception is a study of 772 Tennesseans who kept sleep diaries over a 14-day period (Lichstein et al. 2004). Although men and women slept about the same length of time on a daily basis, women reported more nocturnal awakenings and lower sleep efficiency (i.e., time in sleep as a percentage of time in bed) than did men. Gender and family scholars might plausibly attribute women's greater sleep disruption to their caretaking responsibility for other family members, yet Lichstein and colleagues (2004) did not gather data on the social determinants of sleep.

Some studies have begun to document psychological influences on sleep, primarily the negative and buffering effects of stress and social support, respectively. In general, bonds with loved ones buffer the negative effects of stress on sleep problems, whereas marital conflict heightens stress and susceptibility to insomnia (Patlak 2005; Roehrs, Zorick, and Roth 2000), as does lower socioeconomic status (Moore et al. 2002). Nordin and colleagues (2005) conducted the most comprehensive study of these issues, examining the sleep effects of an array of family stressors and social supports, including networks of kin and friends and parental status. In addition, their study drew heavily from Karasek's (1979) demand-control model to posit that the stressful effects of holding a demanding job (e.g., long hours, a fast pace, and tight deadlines) could be reduced when individuals exercise some control over their work (e.g., starting and ending times, job assignment, and work flow). In a series of bivariate cross-tabulations, Nordin and colleagues (2005) found general support for these research propositions.

To our knowledge, medical researchers have conducted only two multivariate studies isolating the effects of work-family responsibilities on sleep disruption. In a study of female healthcare workers, Williams and colleagues (2006) find sleep effects from work-family spillover, defined as when the demands in one sphere

leave one too distracted, irritable, or fatigued to engage meaningfully in the other sphere. In another study of Japanese civil servants, Sekine and colleagues (2006) report that work-family conflict reduces (but does not eliminate) men's sleep advantage relative to women. Although these findings are provocative, more study of these relationships is needed.

Shift Work and Implications for Sleep

Older research documents that shift workers suffer from higher levels of psychological distress and marital instability than do fixed-day workers (for an overview, see Mott et al. 1965). They also eat more poorly and get little exercise, increasing their susceptibility to stomach ailments and heart problems (Bøggild and Knutsson 1999). More recent studies report similar findings, arguing that disrupted sleep is responsible for shift workers' poor health. Yet, shift-work studies typically ignore how work-family responsibilities affect sleep. More importantly, they draw on sex-segregated samples of factory workers, police officers, engineers, fire fighters, nurses, and the like, precluding an analysis of gender differences in sleep patterns (for an overview of recent research on shift work, see Caruso et al. 2004).

Another line of research reports that due to firms increasingly adopting 24 hour/7 day (24/7) operating schedules, one-fourth of Americans now work nights or rotating schedules (Beers 2000). Presser (2003) reports mixed effects of working nonstandard schedules on interactions among family members. For example, husbands' participation in household labor increases when one spouse works nights and the other works days, yet marital conflict also increases in these couples, especially when the wife works nights. Although Presser (2003) shows that work schedules affect family life, data limitations preclude an analysis of the gendered sleep effects of working nonstandard schedules.

Qualitative Studies of Women's Sleep

In contending that sleep is bounded by the obligations and relationships that characterize women's lives, gender scholars have contributed significantly to an understanding of women's sleep disruption. Garey (1999), for instance, finds that women "weave" work around motherhood duties. Third-shift nurses, for example, opt to work nights so they can be home during the day to fix meals for their children, help them with homework, and volunteer at their schools. Yet women's choice to practice "motherhood on the night shift" often disrupts their sleep.

Hislop and Arber (2003b, 2006) link women's sleep disruption to the demands of caregiving in two ways. First, women report that their husband's weight problems and illnesses affect the men's snoring and sleep. As nurturers, wives are awake when their husbands are ailing and sleep when their husbands sleep; thus, husbands are "gatekeepers" to their wives' sleep (Hislop and Arber 2003b, 2006). Second, men and women view time differently. According to their wives, men see sleep as discrete spells of time to recuperate from work, and their status as family breadwinner gives men rights to uninterrupted sleep at times of their choosing. By contrast, women see sleep as a part of a continuous thread of time in which daytime obligations spill over into the night (see also Davies 1990). For example, if young children wake up during the night, it is the mother's responsibility, as the primary daytime caregiver, to get them back to sleep.

Although these studies clearly show that family responsibilities disrupt women's sleep, the absence of male sleep narratives leaves open the question of whether men's sleep is similarly disrupted by familial and employment obligations. In light of medical researchers' tendency to examine sleep problems in clinical samples, and the sex-segregated samples that typify research on shift work, it is clear that the sleep literature lacks a comprehensive study that treats sleep patterns as subject to the stresses of gendered work and family obligations. Work and family scholars, of course, have paid much attention to how work-family obligations are reflected in time use (for a review, see Bianchi et al. 2006) and subjective reactions to work-family conflict (for a review, see Jacobs and Gerson 2004). The next section draws on this literature to argue that the stresses of gendered work-family responsibilities manifest in gender differences in sleep problems.

GENDER, TIME USE, AND SLEEP DISRUPTION

Gender Differences in Obligatory Time

Even the most casual observer knows that over the past few decades, women have increased their paid work efforts and men are doing more around the house. Yet, this trend is hardly indicative of gender equality in work-family priorities (Bianchi et al. 2006; Risman 1998). Indeed, several studies show that working adults must wrestle with persistent traditional beliefs about gender and family obligations that emphasize men's focus on breadwinning and women's focus on caregiving.

Hays (1996) argues that parenthood expectations rose dramatically in the twentieth century, resulting in the contemporary norm of "intensive motherhood." That is, children are seen as fragile and needy, and substitute caregivers (including fathers) cannot adequately compensate for mothers' attention to their children. Thus, "good mothers" are intensively involved in all aspects of their children's lives at all times. Even among highly educated professional women, Blair-Loy (2003) finds that successful women must wrestle with a "schema of devotion to care giving" that promises fulfillment to women who devote themselves to nurturing children and husbands. These are just two examples of the many studies showing that working mothers must reconcile their career aspirations with their obligations as caregivers (see also Fried 1998; Garey 1999; Gerson 1985; Hochschild 1989; Williams 2000).

Among men, expectations for "intensive fatherhood" have also increased over time (Hays 1996), yet evidence suggests that men continue to identify masculinity with breadwinning more than with being an equal partner at home (Ferree 1990; LaRossa 1997; Pleck 1997). Townsend's (2002) analyses of fathers' narratives show that men define successful fatherhood as providing a "package deal" of support to their children, consisting of a good home in a good neighborhood with good schools. Central to their identities as fathers is earning a high salary, enabling their wives to stay home exclusively and be the "default parent" to their children. In worrying about their obligations as fathers, men are more concerned that they earn too little to fully support their families; they worry less about working too much and seeing too little of their children.

This is not to say that men and women never construct egalitarian arrangements in their work and family commitments, but such couples are unique (Risman 1998; Sullivan 2006). For most adults, hegemonic cultural beliefs about gender combine with workplace inflexibility, requiring men and women to make compromises in how they use their time to meet their obligations to employers and loved ones. Evidence for this proposition can be found in quantitative studies of time use.

Bianchi and colleagues (2006) analyze temporal trends in time use reported in diaries collected between 1965 and 2000; they find a persistent conformity to cultural expectations about gender and family responsibilities. For example, total workloads for mothers and fathers increased over time to an average of 65 hours per week, yet two thirds of men's and women's workloads in 2000 were spent in paid market work and unpaid domestic work, respectively. Of course, the time diaries clearly document women's temporal increase in paid work efforts. Yet, contrary to conventional wisdom, women were *not* shortchanging their children to pursue careers; compared with their married counterparts in 1965, married woman in 2000 reported two hours *more* per week in childcare. Instead, over time women traded off an hour of housework for each additional hour of paid market work. As women did less housework, their husbands took up some of the slack, doubling their time in household chores (and in childcare) from 1965 to 2000. Nevertheless, in 2000, the typical woman spent twice as much time on housework and childcare as did the typical man (Bianchi et al. 2006).

On one hand, as women work more in paid jobs, and men spend more time in domestic work, six in ten adults report frequent conflict between work and family obligations (Jacobs and Gerson 2004). On the other hand, it appears that men do less than women to *resolve* these conflicts. Analyses of the National Study of the Changing Workforce show that compared with men, women place more restrictions on their work efforts (e.g., refuse to travel or work overtime) for the sake of their family lives (Maume 2006). Among dual-earner parents, mothers are three times more likely than fathers to miss work when childcare arrangements fail (Maume

2008). In summary, these findings on obligatory time use suggest that many adults allocate their time in accordance with traditional beliefs about gender and family responsibilities.

Gender Differences in Discretionary Time

Jacobs and Gerson (2004) provide a comprehensive overview of the ways in which escalating job demands have encroached on time for rest, recuperation, and leisure, and time-diary reports suggest that free time is an emerging arena of gender inequality (Sayer 2005). Whereas married men's time in leisure held steady at 35 hours per week between 1965 and 2000, leisure time for married women declined from 36 to 32 hours per week; in 2000, more married women than married men (78 versus 57 percent) said they had "too little time for oneself" (Bianchi et al. 2006:136). In a multivariate analysis of these data, Mattingly and Bianchi (2003) find that work-family covariates such as hours worked, marital status, and family size have stronger effects on women's leisure than on men's, such that if the typical man experienced life as women do, his free time would decline by 14 percent. By contrast, the average woman would enjoy 19 percent more leisure if she experienced life similarly to the average man.

In addition to gender differences in the *quantity* of free time, time-diary data also reveal gender differences in the *quality* of free time. For example, Mattingly and Bianchi (2003) find that men enjoy more uninterrupted and pure spells of free time (e.g., an afternoon of golf), while women's leisure is more fragmented and combined with household chores and childcare (e.g., watching TV while folding laundry or helping children with homework). Temporal trends in time diaries data reveal the growing incidence of contaminating free time with secondary activities, especially among women. For example, between 1975 and 2000, married men's pure free time declined by only an hour (from 30 to 29 hours per week), compared with a seven-hour decline for married women (from 33 to 26 hours per week). Similarly, compared with men, women spent almost twice as much of their free time (7.4 versus 3.8 hours per week) attending, supervising, and facilitating children's activities (Bianchi et al. 2006:100–103; see also Lareau 2003).

These findings suggest that as women pursue careers, they retain their obligations to "intensively mother" their children. To get everything done, employed mothers "deepen" their use of time by combining multiple activities into the same time slot, and they increasingly use their free time for their children's interests rather their own. Despite increased expectations for "intensive fatherhood," gender and family scholars continue to argue that men's greater power within families (deriving from higher earnings in the labor market) effectively shields them from domestic work (Ferree 1990; Hochschild 1989; Risman 1998; Townsend 2002). Responsibilities for coordinating family schedules, getting housework done, and making sure that children's needs are met thus fall more heavily on women than on men, irrespective of how many hours women work at a paid job (Hochschild 1989). It is therefore not surprising that more married women than married men (72 versus 42 percent) report that they are "multi-tasking most of the time" (Bianchi et al. 2006:136).

Mattingly and Sayer (2006) provide additional evidence of women's greater responsibility for coordinating and managing the speed up of family life; their analyses of time diary data show that marital and parental status significantly increase reports of "feeling rushed" among women, but not among men. Moreover, the quantity of free time in 1975 and 1998 consistently reduced perceptions of feeling rushed among men, but by 1998 this was no longer the case among women. Mattingly and Sayer (2006:218) interpret their findings as support for the argument that women's greater burden in harmonizing family obligations with paid work schedules has eroded the quality of their leisure; for women, free time is no longer the "pause that refreshes." In speculating on the implications of their findings, Mattingly and Sayer (2006:219) contend that women's greater time pressure lessens their ability to recuperate from work-family stressors and will negatively impact physical and mental health. On this point, clinical sleep researchers would agree, emphasizing that getting restful sleep requires individuals to first slow down, relax, and clear their minds of concerns that accumulated during the day (for an overview, see Patlak 2005). To the extent that women go to bed feeling more rushed and plagued by intrusive thoughts of work left

undone and family needs not fully met than do men (Davies 1990; Hislop and Arber 2003b), women will be at greater risk of suffering disrupted sleep.

Relative to the points above, we note that Bianchi and colleagues (2006:95–96) examine temporal trends in sleep and find that women and men alike consistently got 55 hours of sleep per week (or about eight hours per day) from 1965 to 2000. Of course, this finding disputes our working hypothesis that in contemporary families, wives get less sleep than husbands due to their greater responsibility for family life. This finding may be an artifact, however, of measuring an activity that is somewhat different from other forms of time use. That is, time diaries are constructed by asking individuals to recall what they did *yesterday* (and estimating weekly time use from the responses). But, because sleep is partly governed by biological processes and circadian rhythms, on any given day it is likely that the average individual will get eight hours of sleep. It may thus require more than a single day to assess the sleep effects of the gendered rhythms of family life, in which more women than men are multitasking, always feeling rushed, and have less time to recuperate from work-family stressors. To assess this proposition, we follow Bianchi and colleagues (2006) by asking survey respondents how much sleep they got "yesterday," but we also construct a sleep disruption index tapping the incidence of sleep problems in the past three months.

Expectations Regarding Family-Work Obligations and Gender Gaps in Sleep

Although sleep is partly regulated by circadian rhythms, it is also an activity over which individuals have some control, and it will be affected by the demands of paid work and household responsibilities. While some individuals depart from traditional beliefs about gender and work-family responsibilities, traditional arrangements are persistent and widespread and provide a basis for making predictions on the social determinants of sleep patterns.

Among women, we anticipate that as family life becomes more complicated because of parenthood or marital conflict, women's sleep will be more disrupted than men's sleep because women assume greater responsibility for domestic harmony. Similarly, we expect women's sleep will be more disrupted than men's sleep when women's responsibilities to coordinate family schedules, do housework, and care for children are made more difficult by working nights or unpredictable work schedules. On a related point, Stolzenberg (2001) finds that traditional images of women as caregivers account for the effects of spousal work efforts on individual health. Specifically, husbands' self-reported health is negatively affected by wives working full-time, presumably because wives who are home more often can get men to eat properly, take medications, and exercise (men's work schedules have no effect on wives' health).

Extending the aforementioned logic to sleep patterns, we expect that men's sleep is disrupted when their wives work full time, but women's sleep is unrelated to husbands' work hours. Men are likely more concerned with their performance at work and less concerned about harmonizing family life with work efforts. If so, men may be distressed by earning low wages or working in dissatisfying jobs, increasing the incidence of sleep disruption among men. For men and women alike, Karasek's (1979) demand-control model suggests that when workers have some control over demanding jobs (e.g., when they exercise some autonomy in their jobs or when seniority provides them with job perks) they suffer less stress, which should lessen their reports of sleep disruption. Finally, the gender perspective recognizes that contemporary adults vary in their identification with traditional gender beliefs and the normative image of family life (Risman 1998; Sullivan 2006). We anticipate that compared with traditional men, egalitarian men will assume more responsibility for family life and report more sleep disruption.

In each of the scenarios above, evidence of a gender differentiated response to work-family obligations should be manifested in gender differences in slope effects for predictors of sleep disruption. In addition, the strength of gendered reactions to assuming similar work-family responsibilities can also be assessed in a decomposition analysis. That is, if the observed gender difference in sleep disruption is due solely to differences in access to positions that define men's and women's lives (e.g., mean differences in hours worked, job autonomy, marital and parental status, and spillover between

work and family life), equalizing these situations would eliminate the gender difference in sleep disruption. On the other hand, if at similar life situations women are held more accountable for the state of family life than are men, then gender differences in the slope effects of sleep predictors will have to be equalized to eliminate the gender difference in sleep disruption. The purpose of this exercise is to assess how gendered reactions to assuming similar work-family role locations reveal another dimension of gender inequality—differences in sleep patterns—that has been largely overlooked in prior work-family scholarship.

THE CASE OF RETAIL FOOD WORKERS

Our sleep disruption analysis consists of a sample of grocery and drugstore workers, with the aim of broadening scholarship on the work-family nexus. Much prior research examines subjective assessments of work-family conflict in samples of well-paid (and mostly male), white-collar employees of large family-friendly firms (for overviews, see Fried 1998; Hochschild 1997; Jacobs and Gerson 2004). Because an emergent feature of today's economy is the growth of 24/7 work schedules (Presser 2003), and because prior studies of shift workers inadequately address gender differences in sleep disruption, there is a need for more study of health-related manifestations of work-family conflict. This work should draw on more gender-balanced samples of the working class, whose members regularly work nonstandard hours, earn modest wages, have limited promotion chances, and whose employers are indifferent to work's effect on family life (Casper, Bianchi, and King 2005). The retail food sector industry is a particularly appropriate niche for conducting such a study.

Over the past two decades, large supermarket and drugstore firms have acquired independent operators and expanded their floor spaces to include merchandise sales and services, a strategy necessitated by the need to compete with "big-box retailers" such as Wal-Mart, K-Mart, and Target (Lovell, Song, and Shaw 2002). With industry consolidation and increased profits for the largest firms, unions have increasingly organized retail food workers. Because food and drug sales are local, employers cannot threaten relocation to defeat union organizing efforts. Although unionized retail food workers earn higher wages and get better healthcare coverage than do their nonunion counterparts (Johansson, Coggins, and Senauer 1999), workers in the industry have been deskilled by the introduction of technologies (e.g., scanners) that track sales and inventory, as well as the creation of central food-processing plants that remove the judgment and discretion involved in ordering, displaying, and selling food items that previously characterized workers in skilled jobs like meat cutting (Walsh 1989). Consequently, 40 percent of all retail food workers are cashiers (the next largest occupation is stock clerk) and job ladders inside stores are short (Lovell et al. 2002). Finally, like most retailers, food and drug stores practice a form of "just-in-time scheduling" (Henly and Lambert 2005), meaning that the short-run flow of patrons determines staffing levels. Retail food workers rarely know a week or two in advance whether, how many hours, or at what times they will be working, and research shows that unstable and rotating schedules disrupt sleep routines (Bøggild and Knutsson 1999; Patlak 2005).

Furthermore, the 24/7 operating schedules in the retail food sector may increasingly typify those of most employers (Presser 2003). In the current economy, workers will find it increasingly difficult to resist employers' encroachment on time typically reserved for recuperation and family life (Rubin 2007). Recent studies of 24/7 workers in call centers (Poster 2007), healthcare (Gerstel, Clawson, and Huyser 2007), and a plastics factory (Perrucci and MacDermid 2007) show that workers struggle to reclaim time from their employers on behalf of their families. A study of the retail food sector is consistent with these efforts to understand the effects of a 24/7 economy on individual well-being and family life (Casper et al. 2005; Presser 2003). Indeed, in supplemental analyses we find that on many dimensions the characteristics of this sample resemble both the labor force as a whole and those employed in retail and personal service industries (see the Online Supplement on the *ASR* Web site: http://www2.asanet.org/journals/asr/2009/toc072.html).

DATA AND MEASURES

Sample

To obtain a sample for this research project, the first author approached elected officials of a midwestern chapter of the United Food and Commercial Workers (UFCW), 80 percent of whose members work for The Kroger Corporation (the nation's largest grocer and third largest retailer). UFCW chapter officials were reluctant to violate their members' privacy by giving us access to personnel records. Instead, union officials provided the names and addresses of approximately 10,000 current members with at least a year of seniority (to avoid surveying seasonal employees who turn over frequently). In November 2006, we sent members a recruitment letter and a follow-up postcard; 779 people volunteered to take a telephone survey. From January to April of 2007, we phoned volunteers until interviews were completed with a target sample of 600 respondents. Scattered missing data on the analytic variables reduce the final sample size to 583 respondents.

While we would prefer that a larger share of the union's membership had volunteered to participate in the study, we proceeded with the analysis because of the paucity of research on the social determinants of sleep patterns. Union officials noted that women are a larger proportion of the research sample (62 percent) than was true of their membership (50 percent), likely because the survey focuses on work-family issues that are more salient to women. Otherwise, union officials confirmed that our sample resembles their membership on the dimensions of age, race, marital status, education, seniority, and hourly wage.

Sleep Disruption

We measured sleep disruption by a standard multi-item scale that clinicians use to assess the cumulative and long-term health effects of sleep problems (for reviews of sleep measurement instruments, see Dzaja et al. 2005; Lichstein et al. 2004). Specifically, subjects were asked, "In the past THREE MONTHS, did you *never, rarely, sometimes,* or *often* ____?"

1. Have trouble falling asleep
2. Wake up before you wanted to
3. Wake up feeling refreshed (reverse-coded)
4. Get about the right amount of sleep (reverse-coded)
5. Have my sleep interrupted by another family member
6. Feel tired even on days when I'm not working
7. Sleep longer than usual on days when I'm not working
8. Have trouble with your memory
9. Feel sluggish or run-down at work
10. Fall asleep while at work

These items ask about symptoms associated with sleeplessness (items 1 and 2), inability to reach a deep and recuperative sleep (items 3, 4, and 8), and other symptoms of sleep problems, including fatigue and oversleeping on nonwork days (items 6, 7) and wake-time dysfunction (items 9 and 10). In addition, we added a single item (#5) after reviewing narrative evidence on women's sleep problems (Garey 1999; Hislop and Arber 2003b). Panel A of Table 1 shows that on 7 of 10 items, women report significantly more frequent sleep problems than do men (we conducted all significance tests with one-tailed tests because the literature review clearly implies that women's sleep will be more disrupted than men's). We summed the 10 items to form a *sleep disruption index* ($\alpha = .71$), on which women score significantly higher than men.[1,2]

[1] A factor analysis reveals three underlying factors (accounting for half the variance in the 10 items), with items 7 and 10 tapping a second factor, and item 5 being the lone item tapping factor 3. Yet, the item 5, 7, and 10 loadings onto the first factor were high enough to consider including them with the other seven items in a single composite index of sleep disruptions. This decision was further justified in supplemental analyses of items 5, 7, and 10 (with the predictors shown in Table 2), the models for which had low explanatory power and few significant variable effects.

[2] Items tapping sleep problems tend to overlap with scales measuring psychological distress and depression, whose symptoms include insomnia and memory problems (Mirowski and Ross 1989). This raises the question of whether depression causes sleeping problems or whether sleep problems produce depression. Findings from recent longitudinal studies suggest that because reaching a deep recuperative sleep stimulates brain activity affecting mood and cognition, poor sleep tends to cause depression, rather than vice versa (Buysse et al. 2008; Neckelmann, Mykletun, and Dahl 2007). Although data limitations preclude controlling for symptoms of depression apart from sleep problems, we did reanalyze

Table 1. Descriptive Statistics on Sleep Measures, by Gender; Midwestern Retail Food Workers, 2007 (N = 362 women; N = 221 men)

	Women		Men	
	Mean	SD	Mean	SD
A. Frequency of Sleep Problems in Past Three Months (1 = never; 4 = often)				
1. Trouble falling asleep[a]	2.65	1.11	2.35	1.06
2. Wake up too early[a]	3.11	1.02	2.96	1.05
3. Wake up un-refreshed[a]	2.47	1.08	2.23	.99
4. Don't get right amount of sleep	2.38	1.11	2.24	1.04
5. Sleep interrupted by family member[a]	2.27	1.18	2.04	1.11
6. Feel tired on nonwork days[a]	3.11	1.06	2.75	1.04
7. Sleep longer on nonwork days	2.67	1.19	2.65	1.16
8. Trouble with memory[a]	2.33	1.12	1.99	1.02
9. Feel sluggish at work[a]	2.68	1.05	2.48	1.04
10. Fall asleep at work[a]	1.06	.32	1.19	.50
Summed Index[a]	24.72	5.54	22.86	5.16
B. Hours of Sleep Yesterday	8.07	2.66	8.03	2.61

[a] Significant gender difference in means, $p < .05$ (one-tailed test).

We also assessed sleep disruption by asking respondents to recall all sleep spells (of at least 15 minutes in length) from 0900 "yesterday" until 0900 "today" (or an equivalent 24-hour window if respondents were sleeping at 0900 yesterday). We calculated *yesterday's sleep hours* as the sum of all sleep spells (95 percent of respondents reported only one or two spells in the previous 24-hour period), and as panel B in Table 1 shows, men and women both got about eight hours of sleep the day before the survey. These results are consistent with Lichstein and colleagues (2004), who find that men and women do not differ in average daily hours of sleep, but that cumulative sleep deficits that threaten health and well-being are better captured by asking about poor-sleep symptoms in the recent past (i.e., the 10 items in panel A). Nevertheless, we regressed total sleep time onto the demographic, familial, and work-related predictors shown in Table 2. Few covariates have significant effects on sleep time (only education negatively affects men's sleep time, while more educated women slept longer and older women slept less) and the explanatory power of the models is low. Thus, *yesterday's sleep hours* will serve as a control for the possibility that sleep time in the day before the survey affected reports of sleep problems in the prior three months.

Based on our literature review, the analytic models will control for sleep stressors identified by clinical sleep researchers and work-family nexus scholars. Table 2 shows descriptive statistics on predictors, beside OLS metric effects on sleep disruption. Variable means and slope effects that differ significantly by gender are denoted by "a" and "b" superscripts, respectively.

Demographic and Health Predictors

The model of sleep disruption controls for *race* (1 = non-white; 0 = white), *education* (in years of school completed ranging from 9 = high school dropout to 20 = graduate or professional degree), and *age in years.* In addition, clinical researchers have identified sleep-inhibiting effects of poor health, prompting the inclusion of a control for *perceived ill health* ("All in all, would you say your health is excellent = 1, good = 2, fair = 3, or poor = 4?"). Similarly, we asked respondents to assess the frequency (in the past three months) of experiencing pain in their lower back, upper limbs (head, neck, or arms), or lower limbs (hips, knees, or feet); we constructed a *count of frequent pain* from the number of "often" responses to the three items. Finally, because weight and sleeping are related, the analytic

our models after removing symptoms of depression that correlate with our measure of sleep disruption. Supplemental analyses of an abridged dependent variable (that retained items 3, 5, 7, 9, and 10) show no substantive deviation from the pattern of results reported in Tables 2 and 3.

Table 2. Descriptive Statistics and OLS Determinants of Sleep Disuption Index; by Gender: Midwestern Retail Food Workers, 2007 (N = 362 women; N = 221 men)

	Women				Men			
	Mean	SD	*b*	SE	Mean	SD	*b*	SE
Constant			13.82	2.84**			14.73	3.34**
Demographics and Health								
Hours of sleep yesterday	8.07	2.66	–.16	.08*	8.03	2.61	–.34	.12**
Non-white	.07	.25	–1.51	.87*	.07	.26	–.90	1.13
Years of education[a,b]	12.73	1.77	.11	.13	13.11	1.96	–.40	.17**
Age in years[a,b]	46.64	12.56	–.10	.02**	43.38	14.94	–.03	.03
Perceived ill health[a]	2.12	.66	.87	.37**	1.95	.65	.31	.51
Count of frequent pain[a,b]	1.02	1.14	1.39	.21**	.65	.95	.26	.34
Body mass index[b]	29.10	7.51	.01	.03	28.18	5.98	.16	.06**
Family Predictors								
Nonworking spouse	.16	.37	.64	.69	.16	.37	–1.36	1.06
Spouse works part-time[a]	.05	.22	.01	1.12	.14	.34	.48	1.20
Spouse works full-time[a]	.43	.50	.53	.75	.30	.46	2.34	1.18**
Unstable marriage	.12	.32	1.73	.71**	.10	.30	1.45	1.03
Has children[a]	.48	.50	.59	.45	.33	.47	–.56	.72
Egalitarian gender ideology	3.70	1.04	.19	.22	3.62	1.07	.66	.28**
Negative home-to-job spillover	1.71	.67	1.30	.35**	1.73	.71	1.80	.42**
Negative job-to-home spillover[a]	2.04	.67	1.90	.38**	1.87	.66	2.48	.50**
Work Predictors								
Works nights or rotating schedules	.41	.49	1.01	.46**	.46	.50	–.09	.62
Hours worked last week	36.12	9.80	.04	.03	36.69	10.83	.08	.03**
Job dissatisfaction	1.86	.74	.48	.34	1.94	.75	1.22	.44**
Perceived job immobility[b]	2.46	1.07	.68	.23**	2.41	1.08	–.22	.31
Job autonomy index[a]	3.14	1.09	–.43	.22**	3.35	1.03	–.29	.32
Tenure in years (logged)	2.26	.78	.62	.34*	2.23	.87	.15	.45
Couple's combined hourly wage[b]	18.64	10.08	–.01	.04	17.96	10.14	–.14	.06**
R^2			.513				.420	
Sy.x			3.991				4.140	

[a] Significant gender difference in means, $p < .05$ (one-tailed test).
[b] Significant gender difference in slopes, $p < .05$ (one-tailed test).
* $p < .05$; ** $p < .01$ (one-tailed tests).

models control for a respondent's *body mass index* (BMI) calculated from self-reports of height and weight.[3]

Family Predictors

To capture family-related stressors on sleep, respondents married to *nonworking spouses, part-time working spouses* (1 to 34 hours per week), and *full-time working spouses* (35 or more hours per week) were each given scores of 1 on a vector of three binary measures; the reference category consists of unmarried respondents. In addition, we assessed stress resulting from marital conflict by asking about "the chances that you and your spouse would

[3] Based on clinical research on the risk factors of poor sleep, we examined several additional health and lifestyle effects on sleep. First, we found that only 7 percent of respondents had been diagnosed with a sleep disorder, yet two thirds of respondents snored themselves (a common symptom of sleep apnea). Second, two thirds of respondents reported that their spouses snored. Third, about one in 10 respondents were currently taking medication to treat a health problem, which could disrupt sleep. Fourth, we considered the sleep effects of pursuing a healthy lifestyle (separately and in a summed index of *healthy behaviors*) by asking about the frequency of eating fruits and vegetables, exercising, eating in fast food restaurants, smoking, and drinking alcohol. These additional controls for a respondent's lifestyle and health status failed to predict sleep disruption and were dropped from the analytic models.

eventually separate or divorce;" unmarried respondents and those in stable unions constituted the reference category in a binary control scored 1 for those in an *unstable marriage* (i.e., they reported a "very high" chance of a breakup). Along with spouse's potential effects on sleep, the analytic models also include a dummy control for *having children* (alternative measures of the number of children and their ages have no substantive effects on the pattern of results). To account for the effects of gendered identities on sleep, we calculated an *egalitarian gender ideology* index as the mean of two 5-point Likert items (it is much better for everyone involved if the man earns the money and the woman takes care of the home and children [reverse-coded]; a mother who works outside the home can have just as good a relationship with her children as a mother who does not work). Finally, to assess how work and family life mutually influence each other, we calculated a *negative home-to-job spillover index* as the mean of five items assessing how often "the demands of your family or personal life affected your job" (e.g., "kept you from concentrating on your work;" $\alpha = .81$); we calculated the *negative job-to-home spillover index* as the mean of five items assessing how often "job demands affected your family or personal life" (e.g., "not been in as good a mood as you would like to be at home;" $\alpha = .76$).[4] Higher values on both indices signify greater negative spillover from one domain into the other.

Work Predictors

To account for job-related stressors on sleep, the analytic models include a binary control for working *nights or rotating schedules* (scored 1 if respondents worked the majority of their hours between 4 p.m. and 8 a.m. or worked rotating schedules; 0 otherwise), as well as continuous measures of *hours worked last week, job dissatisfaction* ("All in all, how satisfied are you with your job;" 1 = very satisfied; 4 = very dissatisfied), and *perceived job immobility* ("How would you rate your chance to advance in your organization;" 1 = excellent; 4 = poor).[5] Given Karasek's (1979) argument that control over one's job reduces the stress of demanding jobs, the models include controls for *job autonomy* (an index calculated as the mean of two 5-point Likert items: I have a lot of say about what happens on my job; I decide when I take breaks) and *employer tenure in years* (logged). Finally, a *couple's combined wages*[6] (logged) may tap favorable work or economic situations that reduce the stress associated with sleep disruption.

GENDER GAPS IN SLEEP

Before discussing the determinants of sleep disruption in Table 2, a few comments on the sample composition are in order. First, among the demographic covariates, women are less educated, older, in poorer health, and in more pain than are men. Gender differences in morbidity

[4] Specifically, the questions asked, "Now, I am going to ask you about specific ways in which your family or personal life (job) might interfere with your job (family or personal life). Thinking back over the last three months, would you say that these things happened *never, rarely, sometimes,* or *often.*" The other items in the *home-to-job spillover scale* are: (1) kept you from getting work done on time at your job, (2) kept you from taking on extra work at your job, (3) kept you from doing as good a job at work as you could, and (4) drained you of the energy you needed to do your job. The other items in the *job-to-home spillover* scale are: (1) had enough time for yourself, (2) had enough time for your family or other important people in your life, (3) had the energy to do things with your family or other important people in your life, and (4) been able to get everything done at home each day.

[5] In preliminary analyses we tested for other stressful work situations that may disrupt sleep, including measures of being forced to work too fast, work overtime on short notice, having supervisory responsibilities, being disrespected at work, job instability, and a composite index tapping conflict with one's supervisor (e.g., my supervisor is unfair; $\alpha = .86$). None of these additional controls for stressful work situations significantly affected sleep disruption, and they were dropped from the analytic models.

[6] Respondents were asked to report their pay and their spouses pay in some unit of time (e.g., per hour, biweekly, or annually), and all responses were adjusted to reflect an hourly wage. We assigned unmarried respondents a value of 0 for spouse's wage prior to summing the respondent's and spouse's wages. Replacing a couple's summed wages with the component measures of the respondent's and spouse's wages had no substantive impact on the results.

are well known (Verbrugge 1989), and in this sample, women's age difference may be associated with their poorer health. As for the BMI measure, men and women alike are both defined as overweight (i.e., having a BMI between 25 and 30). Second, on familial predictors, men resemble women in their gender ideology, yet women are more likely than men to be parents, married to spouses who work full-time, and report higher levels of job-to-home spillover. Finally, men and women largely hold similar jobs (with the exception of men enjoying more job autonomy), likely due to the fact that most members of the sample work for the same firm where most job titles are either cashier or stock clerk.

Turning now to demographic and health effects on sleep, Table 2 shows that the more sleep respondents got the day before the interview, the less sleep disruption they report in the prior three months. Age is negatively associated with sleep disruption among women (but not men), a somewhat surprising finding given that sleep duration declines with age (Patlak 2005). Yet, both clinical (e.g., Vitiello, Larsen, and Moe 2004) and qualitative (e.g., Hislop and Arber 2003b, 2006) studies report that older women come to accept lower-quality sleep as a condition of aging. If so, then older women in this sample may be less likely than men to report problems with sleep disruption when yesterday's sleep time is controlled.[7] Other demographic factors also affect sleep; for example, non-white women suffer less sleep disruption than do white women, while educational attainment is negatively associated with sleep disruption among men.

In regard to health measures, scores on the sleep disruption index increase as women assess their health in more negative terms and as they experience more frequent problems with pain (neither of these covariates has significant effects among men). To the extent that women are more vigilant than men in monitoring their health (see Verbrugge 1989), they may be more likely to recognize situations in which pain and poor health interferes with their sleep. Yet, body mass index has a significantly stronger disruptive effect on sleep for men than for women. Medical researchers suggest that physical differences account for this association, specifically men's larger mass of fatty tissues in the throat that obstructs breathing and increases problems with sleep apnea (Dancey et al. 2003; Vgontzas and Kales 1999).

Turning to family-related stressors on sleep, the results provide direct and indirect support for the working hypothesis that women's greater responsibilities for family life, compared with men, are more disruptive of their sleep. For example, women in an unstable marriage score 1.73 points higher on the sleep disruption index than do single women or those in happier unions. In the case of parental status, the positive but nonsignificant effect of having children on women's sleep disruption is attributable to the presence of controls for spillover between work and family life. That is, when the two spillover indices are omitted from the model, having children significantly disrupts women's sleep ($b = .92$, $p < .05$, results not shown) but not men's. These results suggest that mothers are more likely than non-mothers to report spillover between family and work obligations, and it is the spillover between these two domains that disrupts sleep, rather than parental status per se.

Stolzenberg (2001) argues that women's caregiving obligations include monitoring their husbands' health-related behaviors, and husbands'

[7] Although there is much folk wisdom on the subject of menopause and women's sleep, some researchers are skeptical that there is an association (see Driver et al. 1999; Dzaja et al. 2005). Nevertheless, lacking a direct measure of women's menopausal status, we reexamined the effects of age on sleep disruption in two ways. First, to account for potential nonlinearity in the relationship between age and sleep disruption, women ages 17 to 29 are the reference category for a vector of binary measures of age categories: 30 to 39 years old, 40 to 49, 50 to 59, and age 60 or older (we also increased and decreased the number of age categories and experimented with different reference group categories). Measuring age categorically rather than continuously continued to show no age effect on sleep disruption among men and a linear negative effect among women. Second, we pooled the data by gender and ran cohort analyses (employing several different age thresholds for defining cohorts), looking specifically at the gender difference in sleep disruption by cohort. In all model estimations, women suffered more sleep disruption than did men, although the residual gender effects were not always significant in smaller cohorts.

health worsens when wives' full-time work decreases their presence in the home. Consistent with this argument, we find that men whose spouses work full-time score 2.34 points higher on the sleep disruption index than do the reference group of single men (men with nonworking spouses report less sleep disruption, but the effect is statistically insignificant). On the other hand, as men's commitment to gender egalitarianism strengthens, they suffer more sleep disruption. This finding is consistent with the proposition that egalitarian men shoulder more of the responsibility for family life, which affects their sleep (we tested for interactions of gender ideology with parental status, spouse's work efforts, and the two spillover indices, and found no significant effects on sleep disruption). It is also noteworthy that the two spillover covariates have similar effects on sleep disruption by gender. That is, when the demands of family life limit one's energy and time to commit to being successful at work, or when work demands decrease engagement in family life, the distress caused by these spillover processes disrupts sleep for men and women alike.

Finally, with some exceptions, the sleep effects of work-related covariates conform to gendered expectations about work-family responsibilities. For example, women's sleep is disrupted when they work nights or rotating schedules ($b = 1.01$, $p < .01$), which is consistent with the notion that nonstandard schedules increase women's difficulty in harmonizing family life with work schedules (Presser 2003). Similarly, to the extent that men are concerned about providing for their families, they sleep better as their households' financial situations improve, and they sleep worse when dissatisfied with their jobs. Also, when men work longer hours they suffer more sleep disruption (the effect for women is in the expected direction but is not significant). We might expect that men who have reached career plateaus would lose more sleep by this threat to their breadwinning status, but it is immobile women who report more sleep disruption. Karasek's (1979) demand-control model receives partial support in that job autonomy reduces the incidence of sleep disruption (but is significant only among women), yet years of employer tenure apparently increases job responsibilities and pressures that are associated with poorer sleep among women, but not among men.

In summary, the findings suggest that men's and women's sleep patterns are differentially affected by life's stresses and conflicts. Although many of the gender differences in slope effects are sizable in Table 2, few of them are statistically significant (perhaps because of relatively small samples of men and women).

Decomposition Analysis

How much of the gender difference in sleep disruption is attributable to gender differences in *occupying* distressing life situations and how much is attributable to gender differences in *reacting* to similar life situations? This question can be addressed by a decomposition analysis (Jones and Kelley 1984), the results of which are shown in Table 3.[8] Cell values under column 3 can be interpreted as the change in men's sleep disruption scale score that would occur if they had the same means on predictors as women (column 4 converts these amounts to percentages of the total gender gap in sleep disruption).

Gender differences in health status account for a substantial portion of the gender gap in sleep disruption. For example, if men were in as much pain as women, their scores on the sleep disruption index would increase by .51 points, accounting for 27 percent of the gender gap in sleep disruption. To a lesser extent, if

[8] Jones and Kelley (1984) contend that the choice of slopes for a decomposition analysis should be made on substantive grounds. Typically, decomposition analyses partition the majority-minority difference in the average wage. Using the slopes from the majority group that earns higher pay estimates a "privilege model," whereby the analyst assumes that the majority group's characteristics are over-valued and the appropriate remedy is to reduce majority returns to those of the minority group. Of course, in this example, women are not "privileged" as much as they are burdened by higher levels of sleep disruption. To bring about equality in sleep patterns, however, it is more desirable to reduce women's sleep disruption than to increase men's, suggesting that female slopes should be used in the decomposition exercise. Yet, when we performed the decomposition analysis with the male slopes, results were substantively similar (43 percent of the sleep disruption gap was attributable to mean differences between men and women, and the remaining 57 percent was due to intercept and slope differences).

Table 3. Decomposition of Gender Difference in Sleep Disruption Index; Midwestern Retail Food Workers, 2007

Predictor	(1) Mean Diff	(2) Female Slopes	(3) Amount	(4) Percent
Demographics and Health				
Hours of sleep yesterday	.03	–.16	–.01	0
Non-white	.00	–1.51	.01	0
Years of education	–.37	.11	–.04	–2
Age in years	3.26	–.10	–.31	–17
Perceived ill health	.17	.87	.15	8
Count of frequent pain	.36	1.39	.51	27
Body mass index	.92	.01	.01	1
Family Predictors				
Nonworking spouse	.00	.64	.00	0
Spouse works part-time	–.09	.01	.00	0
Spouse works full-time	.13	.53	.07	4
Unstable marriage	.02	1.73	.03	2
Has children	.15	.59	.09	5
Egalitarian gender ideology	.08	.19	.01	1
Negative home-to-job spillover	–.02	1.30	–.02	–1
Negative job-to-home spillover	.17	1.90	.32	17
Work Predictors				
Works nights or rotating schedules	–.05	1.01	–.05	–3
Hours worked last week	–.56	.04	–.02	–1
Job dissatisfaction	–.08	.48	–.04	–2
Perceived job immobility	.05	.68	.03	2
Job autonomy index	–.21	–.43	.09	5
Tenure in years (logged)	.03	.62	.02	1
Couple's combined hourly wage	.68	–.01	.00	0
Sum of Explained Component			.84	45
Unexplained Component			1.03	55
Gender Difference in Sleep Disruption			1.87	100

men's overall health assessment were as negative as women's, the gender gap in sleep disruption would close by 8 percent. These two covariates alone account for 35 percent of the gender gap in sleep disruption. An important countervailing effect is age. Because men in this sample are younger than women and perceptions of sleep disruption decline with age, equalizing age in the decomposition analysis would widen the gender gap in sleep disruption by 17 percent.

Differences in family situations also account for a sizable portion of the gender gap in sleep disruption. For example, column 1 shows that women exceed men in reporting job demands that sap the time, energy, and enthusiasm needed to meet family responsibilities. If men assumed as much responsibility for family life as do women and reported similar levels of negative job-to-home spillover, men's scores on the sleep disruption scale would increase by .32 points. This would account for 17 percent of the gender gap in sleep disruption; parental status accounts for an additional 5 percent of the gender gap in sleep disruption. These two factors alone account for more than a fifth of the gender gap in sleep disruption. Differences in objective work situations largely fail to explain the gender gap in sleep disruption; only job autonomy accounts for as much as 5 percent of the gender gap in sleep disruption.

In summary, compositional differences between men and women account for 45 percent of the gender gap in sleep patterns, indicating that 55 percent of the gender gap in sleep disruption is attributable to gendered reactions to the work-family situations that men and women occupy.[9] These results are consistent with the

[9] In supplemental analyses, we further limited the sample to married respondents (N = 234 women; N = 122 men) in the belief that negotiated and gendered

general argument that women experience life differently than do men, and this affects how much discretionary time they have and how they use it (Bianchi et al. 2006; Garey 1999; Hochschild 1989; Mattingly and Bianchi 2003; Mattingly and Sayer 2006). To the extent that sleep, as a specific type of discretionary time, is an activity that may be fragmented, curtailed, or otherwise rescheduled to meet the often conflicting demands of jobs and loved ones, these results suggest that this is more characteristic of women's lives than of men's.

DISCUSSION AND CONCLUSIONS

More than 30 years ago, gender and family scholars argued that housework and childcare are invisible forms of work, and that serious study of these activities would reveal how men's lives are privileged over women's. We make a similar argument now about sleep. Perhaps because sleep is an unconscious activity governed by biological processes, social scientists have paid little attention to the social antecedents of sleep, allowing physicians to dominate the field of sleep research. Drawing on scholarship on gender inequality in time use, we contend that sleep is an activity that is affected by gender inequality in waking role obligations.

We found support for this working hypothesis in a sample of 583 retail food workers who self-reported the frequency of experiencing 10 common symptoms of poor sleep. Although gender differences in health status account for a substantial portion of the gender gap in sleep disruption, it is largely the case that greater caregiving responsibilities for family members (irrespective of their work efforts) produce higher reports of sleep disruption among women. For example, women reported more sleep disruption when they were concerned about their marriages, worked nonstandard schedules, their job demands spilled over into their family lives, and when family concerns affected job performance. Men, too, reported more sleep disruption when jobs and family lives spilled over into each other (and when their wives worked full-time), yet mean levels of job-to-home spillover are significantly higher among women. Notably, egalitarian men reported more sleep disruption, yet low-income men and those who worked in dissatisfying jobs suffered more disrupted sleep. Overall, the results show that gendered reactions to work-family situations account for more than half of the gender gap in sleep disruption.

Of course, medical researchers may claim that the gender gap in sleep disruption has less to do with stress in meeting gendered work-family obligations and more to do with basic biological differences between men and women. Specifically, medical researchers have long researched the effects of hormones on sleep, paying particular attention to variation in estrogen levels on sleep patterns (for overviews, see Lee et al. 1990; Vitiello et al. 2004). Yet, an emergent and sizable minority of clinical researchers believe that hormonal changes associated with puberty, menstrual cycles, and menopause account for little of the gender difference in sleep patterns; instead, they conclude that women's greater family obligations strongly affect sleep patterns (Driver et al. 1999; Dzaja et al. 2005; Sekine et al. 2006). It is often beyond the scope of social science research designs to account for biological determinants of health and well-being. Clinicians have the means to take biological measurements, but most downplay the role of work-family demands in affecting the sleep of patients who seek treatment for sleep disorders. Clearly, future sleep studies would benefit from collaborations between sociologists and clinicians in seeking to understand how biological and social influences interact to affect sleep.

These points raise another issue familiar to medical sociologists, namely that women report more illness than do men. Although there is some evidence that women suffer more from chronic ailments and men from fatal conditions, some researchers contend that women are taught to be more introspective regarding

responses to work-family responsibilities may be more pressing and salient among those with spouses. The pattern of results was similar to those shown in Table 2, with a few exceptions. Among married women, hours worked and an egalitarian gender ideology significantly disrupted sleep, whereas BMI no longer significantly disrupted sleep among married men. When we performed the decomposition analysis on the married subsample, 49 percent of the gender gap in sleep was due to compositional differences in work-family lives, suggesting that 51 percent of the gender gap in sleep is due to gendered reactions to similar work-family responsibilities.

their health and are more likely than men to recognize and seek treatment for ailments (Verbrugge 1989). If so, the gender difference in sleep disruption may result from women being more likely than men to recognize and acknowledge when their bodies are distressed and they are having problems sleeping. Yet, even if the gender gap in sleep disruption is more perceptual than real, the immediate outcome is still the same—women's lives are more uncomfortable and less satisfying on an activity that is essential to overall health and well-being (Verbrugge 1989).

Thus, we contend that sleep should be added to the research agendas of scholars concerned about the manifestations of gender inequality in contemporary society. In doing so, we expect future studies to address the potential limitations of this study. First, although we drew this sample of retail food workers to address gaps in prior research on the work-family nexus, this study should be replicated in larger and wider samples of the population. To do so, several ongoing national data collection efforts would only need to add a few questions on symptoms of poor sleep. Not only would social scientists benefit from information on sleep patterns in the general population, but so too would medical researchers who tend to generalize to the population from their clinical samples of problem sleepers.

A second potential limitation of this study is that although we measured sleep disruption consistent with clinical research approaches, some of the sleep disruption items (e.g., insomnia and memory problems) are also used to measure depression and psychological distress. Even though recent medical research shows that sleep problems tend to cause depression rather than vice versa (see note 2), sociological research shows that gender differences in depression result from inequality in work-family obligations (Mirowski and Ross 1989; Ross, Mirowski, and Huber 1983). Future researchers should control for psychological well-being to better isolate the stressful effects of work-family obligations on sleep patterns. Future studies would surely profit from longitudinal designs that not only track changes in work situations and family composition, but that also assess long-term threats to physical and mental well-being as a consequence of gendered work-family obligations (Casper et al. 2005).

Finally, it is important to point out that egalitarian men suffered more sleep disruption than did other men, a finding consistent with other studies showing that some pro-feminist men place family responsibilities on par with career pursuits (see Coltrane 2000; Maume 2006, 2008). It is unclear at this time, however, whether pro-feminist men are at the forefront of a more egalitarian society, or whether they are a minority compared with men who find more satisfaction in pursuing careers and largely cede family responsibilities to their wives (LaRossa 1997; Townsend 2002). As women find more success in career pursuits, the "stalled revolution" in achieving gender equality in domestic labor (Hochschild 1989) suggests that scholars will continue to assess gender inequality with measures of time use. Undoubtedly, pursuing a career, maintaining a home and caring for one's family, being active in the community, and making time for personal interests are essential to one's identity and overall well-being. Gender differences in these activities are important benchmark measures of inequality. Sleep patterns, too, are equally deserving of scholarly attention, with much potential for revealing differences in men's and women's daily lives.

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