Women's Health Issues 21-1 (2011) 19–27

WOMEN'S HEALTH ISSUES
www.whijournal.com

Original article

Balancing Work and Family After Childbirth: A Longitudinal Analysis

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Article history: Received 30 March 2010; Received in revised form 12 August 2010; Accepted 14 August 2010

A B S T R A C T

Background: In the United States, women with young children have dramatically increased their participation in the workforce, resulting in greater potential conflict between work and family roles. However, few studies have examined postpartum work–family conflict. This study examined associations between work–family conflict and women's health after childbirth.

Methods: Employed women, 18 years of age and older, were recruited while hospitalized for childbirth and followed for 18 months ($n = 541$; 66% response rate). Health outcomes were measured using the Short Form 12, version 2. Longitudinal fixed-effects models estimated the associations between work–family conflict (modeled as job and home spillover) and health.

Results: Women who reported high levels of job spillover to home had mental health scores slightly, but significantly, worse than women who reported low levels of spillover ($\beta = -1.26$; $SE = 0.47$). Women with medium and high levels of home spillover to job also reported worse mental health ($\beta = -0.81$, $SE = 0.30$; and $\beta = -1.52$, $SE = 0.78$) relative to those with low spillover. Women who reported medium (versus low) levels of home spillover reported slightly improved physical health ($\beta = 0.64$, $SE = 0.30$). There was no significant association between job spillover and physical health.

Conclusion: This study focused exclusively on employed postpartum women. Results illustrate that job and home spillover are associated with maternal mental and physical health. Findings also revealed that flexible work arrangements were associated with poorer postpartum mental health scores, which may reflect unintended consequences, such as increasing the amount of work brought home.

Introduction and Background

One of the most notable social trends over the past half-century has been the increased participation of women in the workforce. In the United States, the proportion of employed women with children under age 3 almost doubled, with 34% participating in the mid 1970s compared with 60% in 2006 (Bureau of Labor and Statistics [BLS], 2007). Nationwide, 53% of married mothers of infants participated in the labor force in 2007 compared with 48% of mothers who are single (BLS, 2009). Labor force participation rates for mothers of young children vary by state and are highest for mothers of children younger than 6 in the Midwest. Rates range from 73% to 68% in the Dakotas, Iowa, Nebraska, Minnesota, and Wisconsin compared with the US average of 58.6% (McMurry, 2002).

As mothers' workforce participation increases, opportunities for work–family conflict also rise. One policy designed to ease this tension in the United States is the Family and Medical Leave Act (FMLA, 29CFR 825). The FMLA offers up to 12 weeks of unpaid, job-protected leave per year for employees who have worked at least 1,250 hours for a covered employer (≥50 employees). Enactment of the FMLA took 9 years, and was a significant political victory for advocates. However, its leave benefits are minimal relative to other industrialized nations, and

Supported by the grant 5 R18 OH003605-05 from the National Institute for Occupational Safety and Health (NIOSH). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of NIOSH.

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doi:10.1016/j.whi.2010.08.003

it is estimated that only 50% of employed women are covered (Berger, Hill, & Waldfogel, 2005). Under coverage, short leave duration and lack of wage replacement compound the issues surrounding work–family balance during women's pregnancy and the infants' first year of life. For example, studies have linked work outside the home with lower rates of initiation and early cessation of breastfeeding (Galtry, 2003; Lindberg, 1996). Although *Healthy People 2010* recommends breastfeeding for at least 6 months, only 29% of women report breastfeeding until this time (Galtry, 2003). The European Union has established that parental leave is essential in reconciling professional and family responsibilities (McDonald, 2000) and many industrialized countries offer more generous leave that is frequently paid and available to most mothers. Evidence of an association between a paid leave of long duration and breastfeeding is observed in Sweden, which has a 73% breastfeeding rate at 6 months (Galtry, 2003).

Although both parents are affected by balancing the demands of work and family, women generally shoulder the majority of family responsibilities, particularly after the birth of a child (Hofferth, Pleck, Stueve, Bianchi, & Sayer, 2002; Rothbard & Dumas, 2006; South & Spitze, 1994; Tetrick, Miles, Marcil, & Van Dosen, 1994). Data from the 2008 American Time Use Survey show that employed men work, on average, 52 minutes more on work days than employed women, but data also show that men do less housework. On an average day, 20% of men and 50% of women do some housework (e.g., laundry, cleaning); 38% of men and 65% of women do food preparation or clean-up. Among adults who live with children younger than 6 years, women spend 1.2 hours providing physical child care (e.g., bathing, feeding) on weekdays compared with 25 minutes for men. On weekends, women spend 1 hour in physical child care compared with 30 minutes for men (BLS, 2008). Data collected from 1980 through the 1990s suggest that fathers are accessible to their children two thirds as often as are mothers (Hofferth et al., 2002; Trocki & Orioli, 1994). Although employed fathers contribute to home chores and child care, employed mothers commit relatively more time to family care-giving and household work.

One theory often cited as a framework for describing how multiple roles are balanced is role stress theory (van Hooff et al., 2005). This theory asserts that individuals work under constraints (time, energy, and psychological) and that there are finite resources from which to draw energy (Greenhaus & Beutell, 1985). Given that these resources are fixed, taking on additional roles may lead to increased burden. If time, energy, and psychological limits are surpassed, overload occurs, ultimately leading to conflict (GrantVallone & Donaldson, 2001). The outcome of increased role strain is assumed to be negative and detrimental to mental and physical health.

Work–family conflict has been defined by Greenhaus and Beutell (1985) as "a form of inter-role conflict in which role pressures from the work and family domains are mutually incompatible in some respect" (p. 77). Previous research has modeled each domain as both separate constructs and as one global construct. Findings suggest that each domain has unique antecedents and consequences; the best predictors of work-to-family conflict are work-related, whereas the best predictors for family-to-work conflict originate in the home (Hammer, Saksvik, Nytrø, Torvatin, & Bayazit, 2004; Noor, 2004). For example, care for a sick child that results in a parent being late for work or missing the workday entirely would be an example of home responsibilities spilling over into the workplace, or home spillover. An emergency at work that results in a parent being late picking up a child from daycare is an example of job duties spilling over into the home, or job spillover.

Feelings of depression, anxiety, and overall poor physical and mental health are associated with work–family conflict (Frone, Russell, & Barnes, 1996; Frone, Russell, & Cooper, 1992; Grice et al., 2007). Other negative outcomes are cigarette smoking and abuse of alcohol, hypertension, increased fatigue and need for recovery, and job dissatisfaction (Demerouti, Bakker, & Bulters, 2004; Frone, Barnes, & Farrell, 1994; Frone, Russell, & Cooper, 1997; Jansen, Kant, Kristensen, & Nijhuis, 2003; Kinnunen, Geurts, & Mauno, 2004). Work–family conflict also has negative implications for employers through employee absenteeism, increased turnover, and low employee career involvement (Clays, Kittel, Godin, Bacquer & Backer, 2009; Greenhaus, Parasuraman, & Collins, 2001; Netemeyer, Boles, & McMurrian, 1996; Thomas & Ganster, 1995).

Although interest in work–family conflict has grown over time, there remains a relative paucity of studies that specifically investigate women's experiences balancing work and family after childbirth (Grice et al., 2007; Gjerdingen, & Chaloner, 1994b; Killien, Habermann, & Jarrett, 2001; Grice, McGovern, & Alexander, 2008). The purpose of this study was to investigate associations between job spillover into home and home spillover into work and the mental and physical health of women in Minnesota over the 18 months after childbirth.

Methods

We used data from the Maternal Postpartum Health Study, which recruited women hospitalized for childbirth from three area hospitals in the Minneapolis/St. Paul metropolitan area between April and November 2001 (McGovern et al., 2006). The sample was intended to represent employed women who were recent mothers, aged 18 years and older, who resided in the seven-county metropolitan Minneapolis and St. Paul area in Minnesota. Comparisons between this population and mothers of similar age nationwide revealed the women in this study were less likely to be married (77%) than mothers in the entire United States (83%). This study population had fewer Black mothers (9% vs. 15%) and more Asian mothers (11% vs. 5%) compared with national data, but it consisted of a similar proportion of White and Native American mothers (78% and 1%, respectively; Grice et al., 2007).

Women were eligible for the study if they gave birth to a live, singleton infant with no serious complications, had worked for at least 3 continuous months ($\geq$20 hours per week) in the year preceding childbirth, intended to return to work sometime after childbirth, and spoke English.

Labor and delivery nurses reviewed the hospital birth logs to identify all women who delivered during the study period and screened medical charts daily for all maternal admissions. Each woman's medical chart was examined for preliminary sample selection criteria, including county of residence, maternal age, and infant health status. Upon satisfaction of initial criteria, nurses conducted an in-person interview, screening women on additional study selection criteria.

Demographic and baseline infant and maternal health information was collected from hospital records. At enrollment, in-person interviews were conducted in the hospital to gather personal, family, and employment information. Follow-up telephone interviews were conducted, on average, at 5 and 11 weeks, and 6, 12, and 18 months after delivery to collect detailed

information about the physical and mental health of the mother, her employment status, and job characteristics. Approval to conduct this study was granted by the University of Minnesota's Institutional Review Board and the those of the participating hospitals.

Of the 2,736 women who gave birth at study hospitals during the enrollment period, 1,157 (42%) were eligible to participate. Of the 1,579 ineligible women, 581 (37%) were ineligible because of sample selection or health characteristics (e.g., lived outside of the metropolitan area or the baby had serious neonatal complications) and 998 (63%) were ineligible because of employment-related criteria (e.g., not employed at birth and not planning to return to work). Of those eligible, 817 enrolled (response rate, 71%). Of the 817 women who initially agreed to participate in the study, 716 (88% response) completed the interview at 5 weeks postpartum; 541 (66% of the initial participants) also completed the last survey at 18 months and were included in the final analysis. Given sample attrition, a sensitivity analysis that included different subsets of the population was conducted to examine robustness of study findings.

Work–family conflict items were adapted from Frone et al. (1996) and assessed as two separate variables. Job spillover into home was defined as the encroachment of work roles, obligations and expectations on family roles and obligations (e.g., needing to work late) and was assessed using two questions in the survey: "How often does your job or career interfere with your responsibilities at home (e.g., childcare, cooking, cleaning?)" and "How often does your job or career keep you from spending the amount of time you would like with your family?" Responses for each item ranged from 1 (rarely or never) to 5 (most or all of the time) and were added to produce a total score ranging from 2 to10.

Home spillover into work was defined as the encroachment of family roles and obligations on work duties (e.g., leaving work early to pick up a sick child from daycare) and read as follows: "How often does your home life interfere with your responsibilities at work (e.g., getting to work on time or accomplishing daily tasks, working overtime)?" and "How often does your home life keep you from spending the amount of time you would like to spend on job or career-related activities?" Responses ranged from 1 to 5 and were added to produce a total score ranging from 2 to 10 (Frone et al., 1996).

To examine the group most at risk of experiencing work–family conflict, total job spillover and home spillover scores were further consolidated into categories of low (total scores of 2 and 3), medium (total scores of 4–6), and high (total scores of 7–10). The specific cutoff points were supported using bootstrapping and classification and regression tree analyses (Hothorn, Hornik & Zeileis, 2006; Politis, 2003; Shao, 2003).

Both spillover variables were measured at each of the five follow-up periods. Although not all women had physically returned to work at all time periods, women reported participating in work-related duties (e.g., answering e-mail, responding to emergencies) while on childbirth-related leave. For example, at 5 weeks postpartum 10% of the women reported participating in work-related activities even though they were on leave from work (Grice et al., 2007).

Mental and physical health was measured using the Short Form 12, Version 2 Mental Component and Physical Component Summaries at all time periods. The Short Form 12 is widely used to assess overall general physical and mental health in populations and is recognized as a tool with high validity and reliability (Ware, Kosinski, Turner-Bowker, & Gandek, 2002). Mental Component and Physical Component Summaries scores range from 0 to 100, with higher scores being associated with better health. Although there is scant literature available on small differences in mental health scores, a 2-point change in either score is considered to be small, but clinically meaningful (Ware et al., 2002). For example, a 2-point difference in the Physical Component Summaries score has been associated with differentiation among persons with mild asthma from those without asthma (Osman et al., 2000) or allergic rhinitis (Witsell, Dolor, Bolte, & Stinnett, 2001). Interpretation of scores is made possible through the availability of age- and gender-based U.S. population norms (Salyers, Bosworth, Swanson, Lamb-Pagone, & Osher, 2000). For example, the U.S. population norms for females, ages 25 to 34, include mean values of 52.71 (standard deviation [SD], 9.13) for physical health and 47.22 (SD,12.14) for mental health (Ware et al., 2002).

Two types of variables contribute to women's postpartum health over time: Time-invariant variables and time-varying variables. Time-invariant covariates do not change over the observed timeframe. In our data, examples include race, income in the year before childbirth, and number of children in the household. Time-varying covariates are those that change over time for the same woman. Examples include hours worked, social support, breastfeeding, and coworker and supervisor support.

All variables used in these analyses are time varying covariates measured at 5 and 11 weeks, and 6, 12, and 18 months postpartum (Tables 1 and 2). For multivariate analyses, multilevel variables were coded as categorical. Available social support, adapted from Sherbourne and Stewart (1991), included five items measuring major constructs of support (i.e., someone to confide in, someone with whom to relax, someone to help with daily chores, someone to turn to for advice, and someone to love and make you feel wanted [other than your baby]). Total hours of scheduled work and social support were modeled as continuous variables. Marital/partnered status was coded as married, living with partner, or single. Breastfeeding was coded as no/yes. The majority of participants were married. As would be expected, the number of scheduled work hours increased over time.

Work spillover to home and home spillover to work have unique antecedents (Frone et al., 1992); therefore, the covariates that we controlled for in each model differ. We developed a priori causal models and directed acyclic graphs to guide selection of potentially confounding time varying covariates for the models. This method is described by Greenland, Pearl, and Robins (1999) and illustrated by Hernán, Hernandez-Diaz, Werler, and Mitchell (2002).

Four longitudinal regression models were constructed in STATA (STATA Corp, Inc., College Station, TX) with a fixed effect for each woman to examine the relation between the independent variables (job and home spillover) and mental and physical health. Use of fixed-effects controls for both observed and unobserved time-invariant individual characteristics by making comparisons within individuals across time periods and then averaging those differences across all individuals in the sample (Allison, 2006). With fixed-effects regression, each individual serves as her own control and the regression estimates highlight intra-individual variations controlling for time-invariant confounders. Use of a fixed effect for each woman negates the inclusion of time-invariant variables. For example, negative affectivity is a stable personality characteristic associated with high levels of negative mood. If negative affectivity influenced

Table 1
Time Varying Participant Characteristics

Continuous Variables	Interview				
	5 Weeks ($n = 541$)	11 Weeks ($n = 504$)	6 Months ($n = 494$)	12 Months ($n = 487$)	18 Months ($n = 541$)
	Mean (minimum – maximum)				
Mental health score	49.6 (15.1–66.0)	50.7 (17.6–62.4)	50.4 (14.8–66.7)	51.1 (19.1–64.8)	51.4 (19.7–63.6)
Physical health score	51.3 (19.2–67.7)	56.2 (32.5–68.9)	55.4 (22.0–67.8)	55.4 (25.0–64.7)	54.7 (18.2–67.9)
Social support	21 (9–25)	21 (8–25)	21 (8–25)	21 (6–25)	22 (7–25)
Total hours worked	1.6 (0–65)	15.6 (0–70)	30.8 (0–65)	31.4 (0–70)	34.6 (0–75)
Categorical variables, *n* (%)					
Job spillover					
Low	433 (80)	305 (61)	194 (39)	201 (41)	235 (43)
Medium	79 (15)	131 (26)	222 (45)	219 (45)	240 (44)
High	29 (5)	68 (14)	78 (16)	33 (7)	66 (12)
Home spillover					
Low	465 (86)	362 (72)	313 (63)	305 (63)	363 (68)
Medium	64 (12)	124 (25)	170 (34)	165 (34)	166 (31)
High	12 (2)	18 (4)	11 (2)	17 (3)	12 (2)
Marital status					
Married	431 (80)	406 (81)	404 (82)	402 (83)	439 (81)
Live w/partner	72 (13)	58 (12)	52 (11)	48 (10)	56 (10)
Single	38 (7)	40 (8)	38 (8)	37 (8)	46 (9)
Breastfeeding					
No	154 (28)	214 (42)	338 (63)	415 (85)	520 (96)
Yes	387 (72)	290 (58)	201 (37)	72 (15)	21 (4)
On leave					
No	28 (5)	236 (53)	450 (91)	476 (98)	530 (98)
Yes	513 (95)	268 (47)	44 (9)	11 (2)	11 (2)

Note: Mental and physical health scores ranged from 0 (worse health) to 100 (best health).
Job and home spillover scores range from 2 (minimum) to 10 (maximum).

both work–family conflict and postpartum health, the fixed-effect regression would control for that source of bias. Additionally, estimates for time-invariant variables (race, age, highest level of education completed before childbirth, and occupational classification in the 18 months postpartum) are not obtainable (Woolridge, 2002).

Results

On average, mothers were 30 years of age (SD, 5.3), 86% were Caucasian, 74% married, and 46% had earned a college degree at the time of childbirth. Fifty-three percent of mothers in this study returned to work by 11 weeks postpartum—approximately the same duration as the annual allotment of FMLA benefits; almost all mothers were back at work by 6 months postpartum. The proportion of women reporting medium to high levels of job spillover increased 3-fold from 20% at 5 weeks to 61% at 6 months postpartum. Proportions at later time periods ranged from 52% at 12 months to 56% at 18 months postpartum. Fewer women reported medium-to-high levels of home spillover, with proportions ranging from 14% at 5 weeks, increasing to 36% at 6 months, and 33% at 18 months postpartum.

Job Spillover and Mental Health

Results for the models assessing job spillover and mental health are presented in Table 3. Lower mental health scores were associated with higher levels of job spillover into home and intermediate levels of job flexibility, when flexibility was measured as the ability to change work hours and take work home. Women who reported high levels of job spillover into home had mental health scores that were slightly, but significantly less, than women who reported low levels of spillover ($\beta = -1.26$; $SE = 0.47$). Women who found it "somewhat hard" to change their work hours and "not too hard" to take work home also had mental health scores that were lower ($\beta = -1.31$, $SE = 0.58$; and $\beta = -1.24$, $SE = 0.52$, respectively) compared with women who found it very difficult to do either. Further examination revealed that women who found it easy to change their work hours also tended to work more hours and were more likely to work in white collar or professional jobs.

Covariates in the job spillover model associated with mental health included coworker support, family satisfaction with maternal work–family balance, and work hours. Women who "somewhat agreed" and "strongly agreed" that they had the support of their coworkers had mental health scores 3 and 3.5 points higher, respectively, than women who "strongly disagreed" ($SE = 1.50$; $SE = 1.48$, respectively). Mental health scores were also higher among women who reported that their families were satisfied with their work–family balance ($\beta = 1.20$; $SE = 0.39$), and those with more available social support from family and friends ($\beta = 0.42$; $SE = 0.05$) relative to women whose families were dissatisfied or those who lacked available social support. Increasing work hours was slightly, but significantly, associated with improved mental health ($\beta = 0.02$; $SE = 0.01$).

Job Spillover and Physical Health

Results for the models assessing job spillover and physical health are presented in Table 4. There was no association between job spillover and physical health. However, slightly better physical health scores were reported by women who were scheduled to work more hours per week ($\beta = 0.06$; $SE = 0.01$).

Home Spillover and Mental Health

Table 5 presents results from the model assessing the association between home spillover and mental health. Home

Table 2
Time Varying Characteristics

Variable	Likert Scale Items, *n* (%)			
	1	2	3	4
Supervisor support*				
5 Weeks	16 (3)	34 (6)	78 (15)	413 (76)
11 Weeks	7 (1)	21 (4)	86 (17)	390 (77)
6 Months	9 (2)	19 (4)	105 (21)	361 (73)
12 Months	13 (3)	16 (3)	113 (23)	345 (71)
18 Months	5 (1)	20 (4)	109 (20)	407 (75)
Coworker support*				
5 Weeks	3 (1)	6 (1)	46 (8)	486 (90)
11 Weeks	4 (1)	7 (1)	74 (15)	419 (83)
6 Months	3 (1)	13 (2)	74 (15)	404 (82)
12 Months	9 (2)	9 (2)	91 (19)	378 (78)
18 Months	2 (1)	9 (1)	92 (17)	438 (81)
Ability to take time off†				
5 Weeks	36 (7)	84 (15)	140 (26)	281 (52)
11 Weeks	41 (8)	103 (20)	140 (28)	220 (44)
6 Months	39 (8)	95 (19)	127 (26)	233 (47)
12 Months	40 (8)	119 (24)	126 (26)	202 (41)
18 Months	48 (9)	112 (21)	138 (25)	243 (45)
Ability to change hours†				
5 Weeks	92 (17)	106 (20)	138 (25)	205 (38)
11 Weeks	100 (20)	108 (21)	114 (23)	182 (36)
6 Months	88 (18)	105 (21)	111 (23)	190 (38)
12 Months	106 (23)	112 (23)	107 (22)	162 (33)
18 Months	91 (17)	119 (22)	110 (20)	221 (41)
Ability to take work home†				
5 Weeks	201 (37)	73 (13)	64 (12)	203 (38)
11 Weeks	166 (33)	61 (12)	60 (12)	217 (43)
6 Months	172 (35)	57 (11)	44 (9)	221 (45)
12 Months	150 (31)	46 (9)	48 (10)	243 (50)
18 Months	132 (24)	41 (8)	45 (8)	323 (60)
Family's satisfaction w/work balance‡				
5 Weeks	5 (1)	44 (8)	112 (21)	380 (70)
11 Weeks	7 (1)	48 (10)	183 (36)	266 (53)
6 Months	4 (1)	63 (13)	261 (53)	166 (33)
12 Months	12 (2)	61 (13)	249 (51)	165 (34)
18 Months	10 (2)	69 (13)	263 (48)	199 (37)

* Categories are: 1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree.
† Categories are: 1 = Very hard, 2 = somewhat hard, 3 = not too hard, 4 = not at all hard.
‡ Categories are: 1 = Very dissatisfied, 2 = somewhat dissatisfied, 3 = somewhat satisfied, 4 = very satisfied.

Table 3
Association Between Job Spillover and Mental Health

Variable	Estimate	SE	Wald's 95% Confidence Interval	*p*
Job spillover				
Low	Ref.			
Medium	−.27	0.30	−0.87, 0.32	.37
High	−1.26	0.47	−2.17, −0.34	.01
Supervisor support				
Strongly disagree	Ref.			
Somewhat disagree	−1.43	1.11	−3.61, 0.76	.20
Somewhat agree	−0.25	1.04	−2.29, 1.79	.81
Strongly agree	−0.79	1.03	−2.82, 1.24	.44
Coworker support				
Strongly disagree	Ref.			
Somewhat disagree	2.45	1.70	−0.88, 5.78	.15
Somewhat agree	3.09	1.50	0.15, 6.04	.04
Strongly agree	3.50	1.48	0.60, 6.40	.02
Ability to take time off				
Very hard	Ref.			
Somewhat hard	0.47	0.58	−0.67, 1.61	.42
Not too hard	0.61	0.63	−0.63, 1.86	.34
Not at all hard	0.79	0.68	−0.55, 2.13	.25
Ability to change hours				
Very hard	Ref.			
Somewhat hard	−1.31	0.46	−2.22, 0.41	.004
Not too hard	−0.72	0.52	−1.74, 0.29	.16
Not at all hard	−0.67	0.55	−1.75, 0.40	.22
Ability to take work home				
Very hard	Ref.			
Somewhat hard	−0.72	0.48	−1.66, 0.21	.13
Not too hard	−1.24	0.52	−2.25, −0.23	.02
Not at all hard	0.26	0.38	−0.48, 0.99	.49
Job satisfaction				
Very dissatisfied	Ref.			
Somewhat dissatisfied	−1.16	0.87	−2.88, 0.55	.18
Somewhat satisfied	−0.38	0.85	−2.05, 1.29	.65
Very satisfied	0.22	0.87	−1.48, 1.92	.80
Family's satisfaction with balance				
Dissatisfied	Ref.			
Satisfied	1.20	0.39	0.43, 1.97	.002
Marital status				
Married	Ref.			
Living with partner	1.22	0.87	−0.48, 2.93	.16
Single	−0.17	1.07	−2.28, 1.93	.87
Total hours worked	0.02	0.01	0.01, 0.04	.002
Social support	0.42	0.05	0.32, 0.53	<.0001

Abbreviation: Ref., referent group.

spillover into job was associated with lower mental health scores in women who experienced medium and high levels of spillover ($\beta = -0.81$, $SE = 0.30$; and $\beta = -1.52$, $SE = 0.78$).

Covariates in the home spillover model associated with mental health included intermediate levels of job flexibility (when flexibility was measured as the ability to change work hours and to take work home), coworker support, family satisfaction, and available social support from family and friends. Lower mental health scores were reported by women who thought it was "somewhat hard" to change the hours they worked ($\beta = -1.27$; $SE = 0.46$), as did women who thought it was "not too hard" to take work home ($\beta = -1.30$; $SE = 0.52$).

Higher mental health scores were reported by women who believed they had the support of their coworkers ($\beta = 3.08$, SE = 1.50; and $\beta = 3.52$, $SE = 1.48$). As with the previous work spillover model assessing mental health, the family's satisfaction with maternal work–family balance, an increasing number of scheduled hours of work, and availability of social support from family and friends were all associated with higher mental health scores ($\beta = 1.38$, $SE = 0.39$; $\beta = 0.02$, $SE = 0.01$; $\beta = 0.41$, $SE = 0.55$, respectively).

Home Spillover and Physical Health

Table 6 presents results from the model assessing the association between home spillover and physical health. Women who reported medium levels of home spillover to job also reported having slightly improved physical health when compared with women reporting low levels of home spillover ($\beta = 0.64$, $SE = 0.30$). Women who worked more hours also experienced slightly better physical health ($\beta = 0.06$, $SE = 0.01$).

Sensitivity Analysis

A sensitivity analysis, including different subsets of the study population, was conducted to address potential selection bias. A total of 716 women completed the first survey at 5 weeks postpartum and 433 completed all surveys at all five time points. A comparison of the same models, fit using these two cohorts, demonstrated that although the magnitude of the coefficients varied slightly, the direction of the effects remained consistent.

Table 4
Association Between Job Spillover and Physical Health

Variable	Estimate	SE	Wald 95% Confidence Interval	p
Job spillover				
Low	Ref.			
Medium	0.44	0.31	−0.62, 1.03	.15
High	0.14	0.47	−0.78, 1.06	.77
Supervisor support				
Strongly disagree	Ref.			
Somewhat disagree	0.38	1.12	−1.81, 2.58	.73
Somewhat agree	0.16	1.04	−1.88, 2.21	.88
Strongly agree	0.65	1.04	−1.38, 2.69	.53
Coworker support				
Strongly disagree	Ref.			
Somewhat disagree	−2.73	1.70	−6.07, 0.61	.11
Somewhat agree	−1.63	1.51	−4.59, 1.32	.28
Strongly agree	−1.67	1.48	−4.58, 1.23	.26
Ability to take time off				
Very hard	Ref.			
Somewhat hard	0.30	0.58	−0.85, 1.44	.61
Not too hard	0.32	0.64	−0.93, 1.57	.61
Not at all hard	−0.36	0.68	−1.70, 0.99	.60
Ability to change hours				
Very hard	Ref.			
Somewhat hard	0.43	0.46	−0.47, 1.34	.35
Not too hard	−0.75	0.52	−1.77, 0.27	.15
Not at all hard	−0.49	0.55	−1.57, 0.59	.37
Ability to take work home				
Very hard	Ref.			
Somewhat hard	−0.13	0.48	−1.07, 0.80	.78
Not too hard	0.54	0.52	−0.48, 1.55	.30
Not at all hard	0.59	0.38	−0.15, 1.33	.12
Job satisfaction				
Very dissatisfied	Ref.			
Somewhat dissatisfied	−0.27	0.88	−1.99, 1.44	.75
Somewhat satisfied	−0.38	0.85	−2.05, 1.30	.66
Very satisfied	−0.46	0.87	2.16, 1.25	.60
Family's satisfaction with balance				
Dissatisfied	Ref.			
Satisfied	−0.68	0.40	−1.46, 0.09	.95
Marital status				
Married	Ref.			
Living with partner	0.77	0.87	−0.94, 2.48	.38
Single	1.54	1.08	−0.57, 3.65	.15
Total hours worked	0.06	0.01	0.04, 0.07	<.0001
Social support	0.002	0.05	−0.10, 0.11	.96

Abbreviation: Ref., referent group.

Table 5
Association Between Home Spillover and Mental Health

Variable	Estimate	SE	Wald 95% Confidence Interval	p
Home spillover				
Low	Ref.			
Medium	−0.81	0.30	−1.39, −0.22	.007
High	−1.52	0.78	−3.03, −0.02	.05
Supervisor support				
Strongly disagree	Ref.			
Somewhat disagree	−1.37	1.11	−3.56, 0.81	.22
Somewhat agree	−0.12	1.04	−2.15, 1.92	.91
Strongly agree	−0.66	1.03	−2.68, 1.37	.53
Coworker support				
Strongly disagree	Ref.			
Somewhat disagree	2.56	1.70	−0.77, 5.88	.13
Somewhat agree	3.08	1.50	0.14, 6.02	.04
Strongly agree	3.52	1.48	0.62, 6.41	.02
Ability to take time off				
Very hard	Ref.			
Somewhat hard	0.46	0.58	−0.68, 1.60	.43
Not too hard	0.64	0.63	−0.61, 1.88	.32
Not at all hard	0.87	0.68	−0.47, 2.20	.20
Ability to change hours				
Very hard	Ref.			
Somewhat hard	−1.27	0.46	−2.17, −0.37	.006
Not too hard	−0.62	0.52	−1.64, 0.39	.227
Not at all hard	−0.58	0.55	−1.66, 0.49	.29
Ability to take work home				
Very hard	Ref.			
Somewhat hard	−0.68	0.48	−1.62, 0.25	.15
Not too hard	−1.30	0.52	−2.31, −0.29	.01
Not at all hard	0.23	0.38	−0.51, 0.97	.54
Job satisfaction				
Very dissatisfied	Ref.			
Somewhat dissatisfied	−1.13	0.87	−2.85, 0.58	.19
Somewhat satisfied	−0.34	0.85	−2.01, 1.33	.69
Very satisfied	0.27	0.87	−1.43, 1.97	.76
Family's satisfaction with balance				
Dissatisfied	Ref.			
Satisfied	1.38	0.39	0.63, 2.14	<.0001
Marital status				
Married	Ref.			
Living with partner	1.13	0.87	−0.58, 2.83	.19
Single	−0.28	1.07	−2.39, 1.82	.79
Breastfeeding				
No	Ref.			
Yes	−0.39	0.31	−1.01, 0.22	.21
Total hours worked	0.02	0.01	0.003, 0.03	.02
Social support	0.41	0.55	0.30, 0.52	<.0001

Abbreviation: Ref., referent group.

Discussion

The majority of mothers in this study returned to work between 11 weeks and 6 months postpartum. Although many women returned to work when their annual FMLA job-protected leave benefits expired at 12 weeks, some women had paid leave benefits that extended unpaid FMLA leave. Leave duration was correlated with breastfeeding and breastfeeding declined with time from a high of 72% at 5 weeks, to 58% at 11 weeks, and 37% at 6 months. Previous studies suggest that early return to work is predictive of early breastfeeding cessation and may be linked to parental leave (Galtry, 2003; Lindberg, 1996). Recent policy initiatives have attempted to support breastfeeding among employed women; a 2010 amendment to the U.S. Fair Labor Standards Act requires employers to provide a reasonable break time and a private area for nursing mothers to express milk. However, research is needed to evaluate women's access to these benefits.

Two policies currently under consideration in the U.S. Congress are paid sick leave for employers with 15 or more employees and paid parental leave for federal employees. At present, U.S. law does not mandate paid sick leave. Proposed legislation would require employers to provide employees with up to 7 days per year of paid sick time (H.R. 2460, 2009). Although a modest level of wage replacement, the additional time could be used to care for an ill family member. The Federal Employees Paid Parental Leave Act would provide four weeks of paid parental leave for federal employees currently covered by FMLA (H.R. 626, 2009). However, this coverage would only apply to federal workers. Also under consideration is a State Paid Leave Fund (U.S. Department of Labor, 2010). Three states—California, New Jersey, and Washington—have successfully implemented paid family leave programs and several others are attempting to create similar programs (Fass, 2009). Money from the State Paid Leave Fund would be used to help states defray some of the initial costs associated with implementing paid family leave for their residents.

Table 6
Association Between Home Spillover and Physical Health

Variable	Estimate	SE	Wald 95% Confidence Interval	*p*
Home spillover				
Low	Ref.			
Medium	0.64	0.30	0.06, 1.23	.03
High	1.44	0.77	−0.07, 2.95	.06
Supervisor support				
Strongly disagree	Ref.			
Somewhat disagree	0.33	1.12	−1.86, 2.52	.77
Somewhat agree	0.09	1.04	−1.95, 2.13	.93
Strongly agree	0.57	1.04	−1.46, 2.60	.58
Coworker support				
Strongly disagree	Ref.			
Somewhat disagree	−2.61	1.70	−5.95, 0.72	.13
Somewhat agree	−1.44	1.50	−4.40, 1.51	.34
Strongly agree	−1.50	1.48	−4.41, 1.40	.31
Ability to take time off				
Very hard	Ref.			
Somewhat hard	0.31	0.58	−0.83, 1.45	.60
Not too hard	0.30	0.64	−0.95, 1.55	.64
Not at all hard	−0.39	0.68	−1.73, 0.95	.57
Ability to change hours				
Very hard	Ref.			
Somewhat hard	0.42	0.46	−0.49, 1.32	.36
Not too hard	−0.75	0.52	−1.76, 0.27	.15
Not at all hard	−0.48	0.55	−1.56, 0.60	.38
Ability to take work home				
Very hard	Ref.			
Somewhat hard	−0.16	0.48	−1.10, 0.77	.73
Not too hard	0.57	0.52	−0.44, 1.59	.27
Not at all hard	0.61	0.38	−0.13, 1.35	.11
Job satisfaction				
Very dissatisfied	Ref.			
Somewhat dissatisfied	−0.34	0.88	−2.06, 1.37	.69
Somewhat satisfied	−0.38	0.85	−2.05, 1.30	.66
Very satisfied	−0.47	0.87	−1.39, 0.12	.59
Family's satisfaction with balance				
Dissatisfied	Ref.			
Satisfied	−0.64	0.39	−1.39, 0.12	.10
Marital status				
Married	Ref.			
Living with partner	0.81	0.87	−0.90, 2.52	.35
Single	1.53	1.08	−0.58, 3.64	.16
Breastfeeding				
No	Ref.			
Yes	0.16	0.32	−0.45, 0.78	.60
Total hours worked	0.06	0.01	0.04, 0.07	<.0001
Social support	0.01	0.05	−0.09, 0.12	.81

Abbreviation: Ref., referent group.

Although specific aspects of paid family leave programs vary by state, one concern about state paid leave policies is that they may not extend job protection benefits. In such cases, this leaves a gap between federal and state policies because state policies often apply to all, or nearly all, workers in a state whereas coverage under the FMLA is more limited (Fass, 2009). Furthermore, these programs may fail to offer women sufficient time to care for their infants after childbirth. Many childcare centers do not accept young infants and hiring a nanny or other private source of care may be prohibitively expensive. A report released by the Institute for Women's Policy Research noted that none of the childcare centers operated by the General Services Administration in the Washington, DC, area accept children fewer than 6 weeks of age. Further, one third of the centers will not care for children under 3 months of age (Miller, Helmuth, & Farabee-Siers, 2009).

Women more frequently experienced job spillover than home spillover; more than half reporting either medium or high levels at 6, 12, and 18 months and approximately one third reported comparable levels of home spill during the same time periods. Multivariate analyses show that both directions of work–family conflict are inversely associated with mental health scores, a finding consistent with previous studies (Frone et al., 1992; Frone et al., 1997; Grice et al., 2007; Hämming & Bauer, 2009; Kinnunen et al., 2004; Kristenen, Smith-Hansen, & Jansen, 2003; Van Hooff et al., 2005). Specifically, women who reported high levels of job spillover into home experienced lower mental health, as did women who reported medium and high levels of home spillover into work. The magnitude of the associations of spillover on health across time were small, but consistent with the use of fixed effects, which estimates intra-individual rather than interindividual comparisons, thereby yielding conservative estimates that control for almost all possible confounders.

The availability of social support from coworkers was positively associated with mental health scores. Women with support outside of the workplace also experienced better mental health, although the effect was small. These results are consistent with previous research, which notes the relation between the support of coworkers, relatives, friends, and improved mental outlook (Gjerdingen & Froberg, 1991; Gjerdingen & Chaloner, 1994a; Killien, 2005). New mothers may need help identifying potential sources of support and strategies for asking for support—whether such help comes from health care providers within the context of maternal postpartum or pediatric visits or from parenting support groups in the workplace or community. On average, women's mental outlook was also more positive when she perceived that her family was satisfied with the way she balanced both work and family. When family members affirm how the mother balances both work and family, they are also offering a form of emotional support.

We also observed a positive relationship between health and total hours worked, with each additional hour of work being associated with a slight increase in both mental and physical health. This finding is somewhat contrary to previous reports, which suggested that women experienced better health when they worked fewer hours (Gjerdingen et al., 1994b). In this study, it may be that healthier women worked more hours.

There was no clear association between job spillover and physical health. These findings are consistent with previous research (Krantz, Berntsson, & Lundberg, 2005).

Of note were the inverse associations we identified between health and several workplace flexibility items, such as the ability to change hours and the ability to take work home. Women who reported it was "somewhat hard" to adjust their work hours experienced lower mental health on average than women who reported it was "very hard" to adjust their work hours. Moreover, women who felt it was relatively easy to take work home also experienced worse mental health than women who found bringing work home difficult. Women who found it easy to change their work hours also worked more hours and more frequently worked in professional jobs. Thus, flexible work arrangements may not increase the amount of time a mother is able to spend with her child, but instead may have unintended consequences (e.g., the mother may bring home so much work that she never experiences a break from work). Research is needed to explore how flexible work arrangements are used by postpartum women and whether these arrangements lead to increased work–life balance or increased hours of work spread over more locations.

A majority of women reported positive work experiences in terms of supervisor and coworker support, and it is plausible that their high level of perceived support blunted conflict. Most women also reported a supportive workplace, which suggests that our inability to find many significant associations may be related to low variability. Such a finding is important, because it demonstrates the potential protective effects of workplace culture.

Unlike previous research about work–family conflict, we focused exclusively on postpartum women. This study was strengthened by the use of a longitudinal study design, assessing exposure and outcomes at five separate time points over the first 18 months after childbirth. The bidirectional nature of work–family conflict was assessed as opposed to global measures of conflict used in other studies of other populations (Geurts, Rutte & Peeters, 1999; Parasuraman & Simmers, 2001; Swanberg, 2005). Further, the large sample size was sufficient to detect very small differences in mental and physical health scores (Ware et al., 2002).

These results should be interpreted relative to the limitations. The measure used to assess work–family conflict captured the frequency of conflict, but not the source or magnitude of the conflict, nor its importance to the mother. Development of a multidimensional measure of work–family conflict is needed to more comprehensively evaluate the impact of conflict on new mothers. These findings could be the basis for intervention studies testing strategies for their effectiveness in reducing spillover, which could ultimately be the basis for program and policy recommendations.

Selection bias was a potential problem given the choice to include only those women who completed the first and last interviews in the final analysis. However, a sensitivity analysis was conducted to assess the bias. A comparison of models including different subsets of the study population revealed that although the magnitude of the coefficients varied slightly, the direction of the effects remained consistent. Given the similarities between the three models, the results presented in the final model are thought to be representative of the study population. Additionally, the findings may only be generalized to women of similar demographic and employment characteristics, suggesting the need for studies in other populations.

This study design controlled for socioeconomic factors that may influence work–family conflict given the use of a fixed effects model and focus on time-varying factors. However, other investigators may want to estimate the association of socioeconomic status and work–family conflict, which would inform social policies designed to protect economically vulnerable families.

We did not include childcare in our model because utilization of childcare was highly correlated with two other variables, namely, women's leave status and breastfeeding. Issues of access to childcare, cost and quality of services are important factors that may influence work–family conflict and is an area that warrants additional research.

As new mothers strive to balance employment with raising children, they will likely experience work–family conflict, in particular job spillover to home. Future studies are needed to focus on workplace and organizational factors that limit or reduce the burden associated with balancing both work and family obligations and to devise coping strategies to help women (and men) manage conflict. Federal and state policies should focus on development of institutional and fiscal support for employed parents of infants providing support at a vulnerable time in the lifecycle of families.

Acknowledgments

Gratitude is extended to the doctoral training program in occupational health services research and policy made possible through the Midwest Center for Occupational Health and Safety and Educational Research Center supported, in part, by NIOSH (T42OH008434).

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