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Constrained Choices? Linking Employees' and Spouses' Work Time to Health Behaviors

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Abstract

There are extensive literatures on work conditions and health and on family contexts and health, but less research asking how a spouse or partners' work conditions may affect health behaviors. Drawing on the constrained choices framework, we theorized health behaviors as a product of one's own time *and* spouses' work time as well as gender expectations. We examined fast food consumption and exercise behaviors using survey data from 429 employees in an Information Technology (IT) division of a U.S. Fortune 500 firm and from their spouses. We found fast food consumption is affected by men's work hours—both male employees' own work hours and the hours worked by husbands of women respondents—in a nonlinear way. The groups most likely to eat fast food are men working 50 hours/week and women whose husbands work 45-50 hours/week. Second, exercise is better explained if work time is conceptualized at the couple, rather than individual, level. In particular, neo-traditional arrangements (where husbands work longer than their wives) constrain women's ability to engage in exercise but increase odds of men exercising. Women in couples where both partners are working long hours have the highest odds of exercise. In addition, women working long hours with high schedule control are more apt to exercise and men working long hours whose *wives* have high schedule flexibility are as well. Our findings suggest different health behaviors may have distinct antecedents but gendered work-family expectations shape time allocations in ways that promote men's and constrain women's health behaviors. They also suggest the need to expand the constrained choices framework to recognize that long hours may encourage exercise if both partners are looking to sustain long work hours and that work resources, specifically schedule control, of one partner may expand the choices of the other.

One puzzle in health research is: why do people adopt unhealthy behaviors despite widespread knowledge of their potential harm? The deleterious effects of fast food and

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physical inactivity, for example, are widely known: both are key modifiable risk factors for obesity, a condition associated with multiple adverse health outcomes including type-2 diabetes, cardiovascular disease, high blood pressure, and some forms of cancer (Mokdad et al., 2003). Building on the “constrained choices” framework (Bird & Rieker, 2008), we argue that individuals make health-related choices within the constraints of multilayered contexts, including work and family circumstances and gender expectations. Here we focus on constraints related to the resource of *time* in light of its importance in decisions such as whether to prepare healthy meals and whether to exercise (Brown & Roberts, 2011; Chinn et al., 1999). Unhealthy fast food, for example, is often a time-saving strategy that can be incorporated into a busy life (Devine et al., 2006), and exercise decisions depend at least in part on the amount of discretionary time individuals have available (Nomaguchi & Bianchi, 2004).

The last few decades have witnessed a noticeable change in work and family in the United States, with repercussions for time resources as well as health behaviors. First, professionals and managers increasingly report time strain, given the rising intensity of work and actual work hours (Cha & Weeden, 2014; Clarkberg & Moen, 2001; Moen, Kelly & Lam, 2013; Moen, Lam, Ammons & Kelly, 2013; Schieman, Whitestone & Gundy, 2006). Second, families are increasingly time-squeezed, as dual-earner families have become the statistical norm for married couples (U.S. Labor Department, 2013: Table 4). Thus couples' time resources have declined even as time strains have escalated (Jacobs & Gerson, 2001, 2004; Moen & Sweet, 2003). Third, wives are increasingly the family breadwinners (Raley, Mattingly & Bianchi, 2006), often putting in more time and earning more money than their husbands.

Against this backdrop of broad social changes we drew on couple-level data to illuminate whether the work time of one or both spouses predicts health behaviors and whether this differs by gender. Using a unique dataset that surveyed employees in an Information Technology (IT) division of a U.S. Fortune 500 company (referred to as respondents) and their spouses, we extend the health behavior literature by examining these IT professionals' own work hours *and* those of their spouses/partners to shed light on the interplay between work time, control over work schedules, gender, and health behaviors. These salaried professionals are of high socioeconomic status; 80% have a college degree and personal income is high (mean $92,280). The majority (68%) of our respondents are men. We find no gender differences in respondents' work hours (mean 46 hours/week), but their family contexts differ a great deal by gender. While men respondents typically put in longer hours on the job than their wives, more than half of women respondents work longer than their husbands. This emerging subgroup—women professionals who work more than their husbands/partners—is unlikely to be captured in significant numbers in nationally representative samples. Our study therefore is able to examine this group in greater detail, possibly foreshadowing implications for women's and men's health behaviors as more women's jobs become the “main” job in the household.

We address three questions: (1) Do spouses' work hours or couples' conjoint work-hour arrangements predict respondents' odds of eating fast food and exercise? (2) Is control over work time (reported by respondents and/or spouses) a buffer in the relationship between

respondents' long work hours and health behaviors? (3) Are relationships between work time and health behaviors moderated by gender within the couple context?

Work hours in relation to fast food consumption and exercise: mixed findings

Previous studies on work hours and health-related outcomes have been focused on workers' own work hours, with Kleiner and Pavalko (2010) providing one of the most nuanced views of these patterns. Using the National Longitudinal Survey of Youth 1979, Kleiner and Pavalko found a curvilinear relationship between work time and health: greater-than-standard work hours (41-59) predicted lower levels of mental and physical health, but workers reporting extremely long hours (> 59) did not report significantly worse health than full-time (40 hours) workers. The authors proposed several explanations for why very long work hours were not deleterious to health outcomes: more access to flexible scheduling, small sample size, and health selection among the group working extremely long hours. Although they did not investigate health behaviors, their study yields crucial insights into the segmented nature of the work hour-health linkage. To better understand the relationship between work hours and health, it is important to examine two key health-related *behaviors*—eating and exercise—the outcomes we investigate.

From a time availability perspective, more hours on the job often mean less time for workers to prepare healthy meals or to exercise. However, empirical evidence is mixed. One line of scholarship shows those working more hours are more apt to report coming home too tired to do the chores or spend time in leisure (Golden & Wiens-Tuers, 2008). In a survey of low- and moderate-income employed parents in New York, Devine and colleagues (2009) found that fathers and mothers who worked long hours (>= 45) reported significantly greater use of convenience (fast) foods. Work hours have also been shown to encroach on workers' time for exercise, although the effect size is small (Nomaguchi & Bianchi, 2004). Similar findings are documented elsewhere (for dietary habits, see Nakamura et al., 1998; for exercise, see Artazcoz et al., 2009, Popham & Mitchell, 2006).

However, contradictory evidence exists. In a U.S. sample, Grzywacz and Marks (2001) found working *more* hours was associated with *more* regular exercise. Lallukka et al. (2004) also found Finnish men reporting overtime work (> 40) were more likely to follow a healthy diet and engage in physical activity. Both studies controlled for education, household earnings or occupational class, so the counterintuitive findings cannot by simply explained away by advantaged employees' ability to “buy time.” Another set of studies found no association between hours worked and food choice or physical activity, including two extensive meta-analyses (Shields, 1999; Van der Horst, Brunner & Siegrist, 2011).

We argue that this conflicting evidence linking individual workers' own work hours to their health behaviors might result from lack of attention to the larger context of *couple* time availability. Researchers have repeatedly argued that the implications of one spouse's work can be best understood within the context of the other's (Moen, 2003; Moen & Hernandez, 2009). Most existing literature on health behaviors, however, adopts a highly individualized approach—focusing on individual workers exclusively. This is likely a consequence of

limited data on couples as well as the theorizing of individuals as decision-makers. We begin to fill this research gap by examining the health behavior effects of spouses' and couple's conjoint work hours, theorizing both may constrain (or facilitate) food and exercise choices, but in gendered ways.

Spouses' work time in relation to respondents' fast food consumption and exercise

There is little research on the effects of spousal employment and work hours on respondents' health behaviors, but more research on the effect of spousal employment and work hours on self-reported health. A nationally representative study showed that having an employed spouse was linked to better health (Kleiner & Pavalko, 2010). But this association could differ by gender. Given that paid work is tightly linked to masculinity, and that men are still expected to be breadwinners (Moen & Roehling, 2005; Townsend, 2002), non-working husbands violate conventional expectations. Both these men and their wives may experience increased stress and reduced wellbeing (Bird & Rieker, 2008). Conversely, non-working wives may engage in conventional household roles, preparing healthy meals for their husbands and protecting time for their husbands to exercise. This argument leads us to predict a gender-differentiated pattern linking spouses' employment to respondents' health behaviors:

> Hypothesis 1a: Women respondents whose husbands are not employed will be more likely to consume fast food and less apt to exercise. However, wives' non-employment will be associated with lower fast food consumption and higher odds of exercise for men respondents.

Long work hours by spouses may mean that they are less available for tasks such as shopping for and preparing food, but gender expectations also matter. The health consequences of spouses' long work hours may be particularly severe for men respondents (i.e. male IT employees whose wives work long hours), given that it is usually women who do most housework. For example, Stolzenberg (2001) reported that a longer work week of wives (> 40) was linked to husbands' negative health outcomes, but long work hours by husbands were unrelated to wives' health. Additionally, this relationship may be non-linear. In their examination of exercise as a mediator between spouses' work hours and health, Kleiner and Pavalko (2014) showed that men whose wives work moderately long hours (41–49) are less likely to spend time on exercise, whereas men whose wives work very long hours (50+) exercise at similar levels to those whose wives work 40 hours per week or part-time.

These findings, however, are challenged by two counter-arguments. First, Springer (2010) showed that part of the undesirable effect of wives' work hours is due to women working more because their husbands are not healthy; a selection problem is operating in research on breadwinning wives. (Our analysis avoids this problem by removing respondents whose spouses did not work due to health reasons and controlling for spouses' health status.) Second, gendered expectations and practices may be so deeply embedded as to trump the actual time resources one has vis-à-vis a spouse. Regardless of their breadwinning status,

women are found to continue to do more housework than husbands (Bianchi et al., 2000), are more likely to cut back on their leisure to do childcare (Bianchi & Mattingly, 2003), and are more apt to restructure their careers in response to husbands' long work hours (Cha, 2010), thus opening up opportunities for their husbands to have home-cooked meals as well as time to exercise. Men, on the other hand, often contribute less household labor when they spend more hours on the job (Stone, 2007). Given these different arguments regarding who —respondent men or women—are affected more by their spouses' work hours, we tentatively predict that:

> Hypothesis 1b: Spouses' long work hours will be associated with respondents' higher odds of eating fast food and lower odds of exercise, net of their own working time, and this association is stronger for men than for women respondents.

Couple's work arrangements in relation to respondents' fast food consumption and exercise

Following Clarkberg and Moen (2001), we conceptualize work time as a couple-level construct. We distinguish five substantively meaningful types of couples: (1) respondent sole breadwinner (spouse not working), (2) respondent primary breadwinner (respondent long hours, spouse fewer hours), (3) spouse primary breadwinner (spouse long hours, respondent fewer hours), (4) moderate commitments (both lower hours, < 45 hours/week), and (5) high commitments (both long hours, >= 45 hours/week). Note we define breadwinning based on hours worked, not incomes. This is appropriate given our interest in time availability and for this sample where the IT respondents are all salaried (so hours worked do not translate into wage income).

We expect gender differences in the health behaviors of men and women in the respondent sole breadwinner, respondent primary breadwinner, and spouse primary breadwinner arrangements. Men respondents in couple dyads that conform to traditional or neo-traditional expectations—those who work long hours but have wives working fewer hours or not employed—are theorized at lower risk of unhealthy behaviors because their wives' home production includes preparing meals and frees them up to exercise.

Breadwinning women might use their bargaining power to offload housework to their husbands, but usually don't do so (Bittman et al., 2003), partly due to gender norms (Killewald, 2011). Indeed, husbands' share of housework remains proportionately low even in households where women spend more time than their husbands in paid work (Booth & Van Ours, 2009). We therefore hypothesize that women respondents who are at odds with conventional expectations (i.e., working long hours while their husbands do not; what Moen and Sweet (2003) call “crossover commitments”) are more likely to eat fast food and less likely to exercise due to their high obligations on both home and job fronts.

> Hypothesis 2: Men respondents who work long hours but whose wives do not are less likely to eat fast food and more likely to exercise, compared with men located in other types of couple relationships. Women respondents who work long hours but whose husbands do not are more likely to eat fast food and less likely to exercise, compared with women located in other types of couple relationships.

Schedule control as a buffer between long work hours and poor health behaviors

The extent to which each additional work hour crowds out health-promoting behaviors may depend on both respondents' and their spouses' degree of control over their work schedules. Previous research found greater control over work time resulted in increased health behaviors such as more exercise and higher perceived time for healthy meals (Moen, Fan & Kelly, 2013). We theorize schedule control as a couple-level resource that buffers the potential unhealthy effects of extended work hours, given that a flexible schedule is a resource that can be shared within a family. In other words, with higher levels of schedule control possessed either by themselves or their spouses, those working long hours may be able to add exercise and good food into their daily routines (Presser, 2003).

Gender may moderate this relationship, given that women traditionally have heavier family care responsibilities and thus are in higher need of flexibility. Given gendered expectations, however, women respondents may be more likely to use flexibility to manage their housework or childcare instead of engaging in behaviors conducive to their own health. As for spouses' schedule flexibility, men may benefit more from their wives' work flexibility than women in similar living situations.

> Hypothesis 3a: Respondents' high schedule control buffers any undesirable effects of their long work hours on fast food consumption and odds of exercising, recognizing that this moderation may differ by gender.
>
> Hypothesis 3b: Spouses' high schedule control buffers any undesirable effects of respondents' long work hours on fast food consumption and odds of exercising, recognizing that this moderation may differ by gender.

Method

Sample

We draw on data from the Work, Family & Health Network Study, an interdisciplinary study designed to examine the impact of workplace practices and policies on work, family life, and health outcomes (King et al., 2013). Computer-assisted personal interviews were collected in the IT division of a U.S. Fortune 500 workplace we call TOMO (pseudonym). Of the 1182 employees invited, 823 (70%) completed face-to-face interviews administered by trained field interviewers. Spouses and cohabiting partners (hereafter spouses) were recruited and interviewed by phone, yielding a response rate of 72% (N = 455). Because information on spouses was provided by the spouses themselves, our study is better positioned than many studies with regard to bias resulting from proxy reports.

We excluded 14 TOMO employees whose spouses were of the same sex (8 men and 6 women) given distinct gender dynamics in same-sex couples. An additional 5 employees whose spouses did not work due to “own medical reason” were removed, to better address the endogeneity problem emphasized by Springer (2010). We further excluded 7 employees with missing values. The analytic sample is 429 TOMO employees (referred to as

respondents) for whom their spouses' (referred to as spouses or as wives or husbands of respondents) information was also collected, producing data on 429 couples.

Measures

Health behaviors

Fast food consumption was assessed by a single question: "How many times in the past 4 weeks have you eaten a meal from a fast food restaurant?" We distinguish those with no fast food consumption from those who ate fast food at least once (= 1). Fast food consumption has been associated with unfavorable dietary profile such as higher intake of calories, fat, saturated fat, sodium, carbonated soft drink, while lower intake of vitamins A and C (Paeratakul et al., 2003).

Physical activity is a response to "How many times in the past 4 weeks did you engage in exercise for at least 20 minutes that caused you to break a sweat?" Responses range from 0 to 50. Given that no further information was solicited regarding amount of time spent exercising per bout and that even a low level of exercise provides the benefit of mortality reduction (Leitzmann et al. 2007), we compare respondents who exercised at least some time (= 1) versus those who did not engage in any exercise.

Work-Hour conditions

Both *respondents*' and *spouses' work hours* are assessed with "How many hours do you work in a typical week?" Answers range from 30 to 87 hours for respondents (though only four respondents work fewer than 40 hours) and 2 to 100 hours for employed spouses.

Spouses' employment status (paid job = 1) is based on the question "Do you currently have a full or part time job?"

Couple-level work hours is a categorical variable consisting of five substantively meaningful groups: (1) respondent sole breadwinner (spouse not working, n = 85), (2) moderate commitments (both < 45 hours/week, n = 79), (3) respondent primary breadwinner (respondent >= 45 hours/week, spouse < 45 hours/week, n = 134), (4) spouse primary/equal breadwinner (respondent < 45 hours/week, spouse >= 45 hours/week, n = 46), and (5) high commitments (both >= 45 hours/week, n = 85). We chose 45 hours/week because it is a meaningful distinction between a normative number of full-time hours and long hours (for similar use, see Clarkberg & Moen, 2001; Moen & Sweet, 2003), and also to ensure we have sufficient people in each group.

These categories also conform to gendered categories proposed by Moen and Sweet (2003). When their wives are not employed, men become the traditional breadwinners; when men respondents put in more hours than their wives this is a neo-traditional arrangement; when women respondents put in more hours than their husbands this is a crossover arrangement. Appendix Table A provides descriptive statistics for these five groups. Note that (1) some spouses report earnings despite their non-employment, and (2) for the spouse primary or equal breadwinner group, the proportion of total income brought in by men respondents is

68% even though they work fewer hours than their wives; this reflects the gendered nature of jobs and wages.

Moderators

We show results separately for men and women respondents to assess *gender* differences.

Respondents' schedule control is indexed by an 8-item scale adapted from Thomas and Ganster (1995). Items are rated on a 1-5 scale and include questions such as, “How much choice do you have over when you can take off a few hours?” and “How much choice do you have over when you begin and end each work day?” Cronbach's alpha is 0.80.

Spouses' schedule flexibility is based on spouses' responses to one question: “How much flexibility do you have in your work schedule to handle family responsibilities?” Responses range from “no flexibility at all” (= 1) to “a lot of flexibility” (= 4).

Covariates

We control for *age*, *age squared*, *race/ethnicity*, *parental status* (no children living at home, youngest child at home < 6, youngest child at home >= 6), *adult care provision*, *college education*, and *personal income* (logged). A merger was unexpectedly announced at TOMO in the middle of data collection. Reasoning that TOMO employees might have responded to this announcement by investing more time in work to minimize risks of being laid off, we adjust for the *timing of the interviews* (before or after the merger announcement).

We control for four health-related variables, given that people who are unhealthy are less likely to work long hours and less apt to engage in healthy behaviors such as exercise. These include respondents' physical functioning and psychological distress, as well as spouses' physical health symptoms and psychological distress. *Physical functioning*, a 9-item subscale of the 36-Item Short Form Health Survey (SF-36, Ware & Sherbourne, 1992), encompasses activities of a hierarchical range of difficulties (from vigorous activities to walking 1 block). Each item is scored based on the limitations perceived by respondents (0 = yes, limited a lot; 50 = yes, limited some; 100 = no, not limited at all), which are then summed to obtain a total score. We took the natural logarithm of the scale because of its skewness. *Psychological distress*, or the K6 scale, is a widely used mental health screening scale in the United States and has been demonstrated to better predict a diagnosis of serious mental illness than several other scales of psychological distress (Kessler et al., 2003). Spouses' physical health was assessed with Larsen and Kasimatis' symptoms checklist (1991) asking whether they had symptoms in the past 2 weeks such as a persistent cough, a cold, etc. Responses, ranging from “almost never” (= 1) to “almost always” (= 5), are summed with higher scores representing greater frequency of physical health problems. Taken together, these four health measures should relieve bias due to health selection of either spouse.

Analytic strategy

We use dichotomous logit models to predict the odds of engaging in each of the two health behaviors. TOMO employees are organized into work teams that often work together on

projects, so we use Huber-White robust standard errors to adjust for the clustered data. AIC and BIC indicated that fast food is better fitted by an additive model where own and spouse work hours are considered separately, while exercise can be better understood when work hours are conceptualized at the couple level (a conjoint model). To save space we present results from additive models for fast food and from conjoint models for exercise; the other set of models are provided in Appendix Table B. For conjoint models, we use “high commitments,” the group expected to engage in the least healthy behaviors, as the reference group. Results from pairwise comparisons of other couple-level arrangement are reported in Note 2 of Table 2. To test the moderating role of schedule control, we include interaction terms between respondents' work hours and schedule control of respondents and spouses, centering respondents' work hours and both spouses' schedule control at the sample mean for the appropriate gender.

Results

Descriptive results

Table 1 presents background characteristics for the married IT employees. As noted, we refer to those in the IT sample as “respondents” (often specifying women or men) and their spouses/partners as “husbands” or “wives.” Sixty-eight percent of the partnered IT workers are men and the mean age is 46. Most are non-Hispanic White (68%). A third (33%) have no children living at home, while 23% have at least one preschooler. Almost a quarter provides care for infirm adults (22%), with more women doing so than men (29% vs. 18%, $p < .01$). Most respondent employees have a college degree (80%), especially men (84% vs. 71%, $p < .001$). The average personal income is $92,280, with men respondents averaging approximately $10,000 more than women respondents ($p < .001$). Men and women respondents have comparable levels of physical health, but women report higher levels of psychological distress (11.5 vs. 10.36, $p < .001$).

Only 19% of respondents did not consume any fast food, but the majority (84%) exercised at least some time, suggesting that these healthy behaviors do not go hand in hand. Respondents work on average 46 hours per week and report between “a moderate amount” and “much” control over their work time. There is no gender difference in their work hours or schedule control. This likely reflects selection into IT occupations—where similar women and men move into this demanding sector—and the high-pressured work environment of this corporation. In contrast, gender differences are observed for their spouses' employment status and work hours: wives of men respondents are less likely to be employed (76% vs. 90% for husbands of women respondents, $p < .001$). Among spouses who are employed, wives work an average of 37.7 hours per week, whereas husbands work an average of 45.3 hours ($p < .001$). When work hours are assessed at the couple level, we observe several gender variations. Men respondents are more likely to be sole breadwinners (24% vs. 10% for women, $p < .001$), while women respondents are more likely to be in couples where their husbands are primary breadwinners (18%), compared with men whose wives are the primary or equal breadwinners (7%, $p < .001$). In addition, a considerable proportion of women respondents are located in couples where both partners work at least 45 hours/week (31%), much higher than that of men respondents (14%, $p < .001$).

Respondents' and spouses' work hours and health behaviors (H1-H2)

Table 2 presents estimates of men and women respondents' odds of eating fast food (Models 1-2) and exercise (Models 3-4). AIC and BIC indicated that these two health behaviors are shaped differentially by respondents' and spouses' work time and these relationships operate in gendered ways. Fast food consumption is associated most strongly with men respondents' own or women respondents' *husbands*' work hours, whereas exercise depends more on work time conceptualized at the couple-level.

There is a nonlinear relationship between men respondents' work hours and odds of eating fast food (Model 1). Each additional work hour predicts higher odds of men eating fast food up to approximately 50 hours/week; after that, each additional work hour predicts lower odds of fast food consumption (Figure 1). Women's fast food consumption is dependent not so much on their *own* work time as on their *husbands*' work hours (Model 2). A striking parallel to men respondents is observed for the shape of the relationship (Figure 2): women are more apt to eat fast food as their *husbands*' work time increases up to the point of approximately 45-50 hours/week, at which the relationship between work hours and fast food consumption becomes negative. Taken together, men's hours of work seems to drive fast food consumption in couple households, regardless of how many hours wives put into work.

We find a gender difference in exercise as well. Men respondents who are primary breadwinners (i.e. working longer hours than their wives) are the most apt to exercise of all five groups, statistically significantly so when compared with men who are sole breadwinners ($p < .01$, Model 3, see Note 2 of Table 2). For women respondents, compared with women in “high commitment” couples where both partners put in long hours, the odds of engaging in exercise were 92% lower (1 - exp[-2.501] = .92, $p < .001$, Model 4) for women working less than their husbands, and as expected in Hypothesis 1a, 87% lower (1 - exp[-2.073] = .87, $p < .05$, Model 4) for women who are sole breadwinners. We also experimented with other cutoff points (exercising >= 4, >= 16, and >= 20 days/week), finding that key results hold for women respondents but not for men (available upon request). The arrangement where women work fewer hours than their husbands should give women more time to exercise; but we find this arrangement tends to limit women's exercise behavior while enabling their husbands' exercise (at least in terms of exercising at least once per month). Dual-career couples where both partners put in long work hours are more likely to find time for exercise. Thus long hours cannot be depicted as an inevitable constraint, with shorter hours an inevitable resource; rather, couple arrangements and gender need to be taken into account.

The moderating role of respondents' or spouses' schedule control (H3)

Table 3 assesses whether respondents' or spouses' higher schedule control or flexibility modifies the association between long work hours and health behaviors. This is the case for exercise, but again in a gendered fashion (Table 3). While men respondents' exercise is not sensitive to their own schedule control levels (Model 1), the relationship between women respondents' own work hours and exercise differs depending on how much control they have over their schedules (interaction term .268, $p < .001$, Model 2). Figure 3 shows the predicted

probabilities of engaging in any exercise for women putting in various hours on the job with different levels of schedule control. Longer work hours translate into lower probabilities of exercising for women respondents with low levels of schedule control. This negative relationship is lessened for women with moderate levels of schedule control, and for women who have high control over their schedules, long hours on the job predict *higher* probabilities of exercising.

Spouses' schedule flexibility displays an opposite gendered pattern in that respondent men who work long hours benefit most from their spouses' work time flexibility (interaction term .129, $p < .01$, Model 3). For men respondents whose wives have “a lot of flexibility” in their work schedules, men's own long work hours are associated with higher probabilities of engaging in exercise, a pattern not observed for men respondents whose wives have less flexibility (Figure 4).

Discussion

This paper takes advantage of couple data including survey data from employee respondents of an IT workforce and their spouses to test whether employees' decisions as to exercise or eat fast food are made in light of their own and their spouses' work hours and flexibility. Understanding the role of work time and the coupled aspects of employees' diet and exercise behavior is an important step towards the prevention of conditions such as obesity and the promotion of a healthy workforce.

What are the optimal arrangements for encouraging these health behaviors? The answer is complicated. Our study reveals a non-monotonic relationship between work hours and fast food consumption. Specifically, the groups most likely to eat fast food are men who work about 50 hours/week and women whose husbands work about 45-50 hours/week. When men work fewer or longer hours, the odds of fast food consumption become lower. For exercise, women in IT are most apt to exercise if they and their husbands put in 45 or more hours a week – but this is the case only for women with considerable schedule control. Men with long hours are especially likely to exercise if their wives either work fewer hours or have jobs with considerable flexibility; this suggests that wives who are able to take on home obligations free their partners to exercise.

Given these findings, one contribution of our study is to show that long work hours are not always a constraint on healthy behavior. Instead, work hours' effects depend on the gendered arrangements of the couple dyad and the work-hour flexibility of both partners' jobs. “Constraints,” therefore, need to be better conceptualized and operationalized in future research, as well as placed in couple contexts. The curvilinear findings between work hours and fast food consumption, for example, belie simple theories of time availability. Future research is needed to understand why more work hours are related to lower odds of eating fast food, at least for men working more than 50 hours a week and for women whose husbands working longer than 50 hours. Do people putting in long hours feel they must eat healthy in order to sustain long hours on the job? Do people working long hours develop more efficient ways to deal with time strain, as suggested in the time-deepening hypothesis (Robinson & Godbey, 1997)? Or as their husbands bring in more resources, do women feel

more pressure to do more housework including putting food on the table instead of buying fast food? This is a potentially fruitful area for the study of individual and couple decision-making. This non-monotonic finding may also reflect a limitation of our measure, which cannot capture the long-hour couples' dining out in full-service restaurants (as opposed to fast food restaurants) to save time and effort. Future research is also needed to understand whether fast food saves time in high-income professional samples.

Similarly, it is surprising to see that women respondents located in dual high commitment couples are the most likely to engage in exercise. Does this mean there are more resources, such as paid help lessening the need to arrive home at certain times, and therefore more ability to put in time at the gym? Alternatively, this might suggest a process of health selection. Although we adjust for a set of health measures, all of them are better able to capture the lower end (e.g., limitations in daily activities) than the higher end of the health distribution, whereas the latter (e.g., high energy levels) may be the driving force behind the observed association.

This study also shows that different forms of health behaviors are not necessarily shaped by similar factors. Long hours by self or spouse may promote both exercise (a positive effect) and the eating of fast food (a negative effect). Health researchers have debated the degree to which health behaviors are interrelated or are independent (see Blaxter, 1990; Newsom et al., 2005). In debunking the “health consciousness myth,” Newsom and his colleges (2005) showed that major health behaviors (smoking, exercise, diet, and alcohol consumption) are largely unrelated to each other, based on four large epidemiological surveys in the United States and Canada. Our finding that fast food consumption and exercise have distinctive antecedents in the workplace and family supports this, suggesting that each health behavior should be studied in its own right. One implication is that there may not be a single panacea promoting all types of healthy behaviors simultaneously, and health promotion initiatives should be designed accordingly.

Evidence of the gendered nature of the relationship between work-hours and health behaviors constitutes another contribution of this study. For example, the insensitivity of women respondents to their own work hours, as well as men respondents to their wives' work hours, in terms of fast food consumption, suggests that diet decisions are affected by husbands' work time within a couple. Moreover, women conforming to neo-traditional gender expectations (working fewer hours than their husbands) exercise the least, while men who conform to conventional gender roles (i.e., working longer hours than their wives) have higher odds of engaging in any exercise. Given that the neo-traditional model remains widespread (Moen, 2003; Moen & Roehling, 2005), these findings provide concrete evidence of the production of gender inequality in health-related outcomes. Although married or partnered workers may be increasingly negotiating with their spouses regarding the allocation of time, the expectations of career jobs and the press of home obligations continue to constrain women's options, thereby crowding out their time to exercise. This is not the case for men respondents. Wives are therefore time resources for husbands in a way that is not reciprocal. In analysis not reported here (available upon request), we find that among women, longer work hours are associated with less perceived time adequacy with family (-.018, $p < .05$). Women's time adequacy is also affected by having children living at

home (-.479, $p < .05$ for preschoolers and -.28, $p < .05$ for children older than 6, compared to no child at home). Neither holds for men. These findings suggest that women usually bear the responsibility of childcare and perhaps are more likely to feel guilty if not spending "enough" time with family members. To compensate, they may respond by not engaging in exercise. If this is the case, on-site daycare or exercise facilities provided in the workplace may help women employees to incorporate exercise into their daily schedule.

Our study also underscores the importance of schedule flexibility. Both respondents' and their spouses' degree of control over their work time moderate the link between respondents' long work hours and exercise behavior, and in gendered ways. Schedule control is a valuable resource for women respondents who put in longer hours, encouraging more exercise among women (but not men) working extended hours. Conversely, a flexible work schedule of their spouses is a family resource that benefits men (but not women) respondents who put in long hours. This evidence suggests that schedule flexibility assists employees and their spouses in making healthy use of their time such as exercising. These asymmetric gendered findings additionally suggest that women benefit from greater schedule flexibility, which not only helps themselves but their husbands to engage in healthy behaviors.

Our analyses have several limitations. First, this is an observational study, so the findings cannot establish causal relations. Quasi-experiments and randomized field trials are important future research directions to tease out confounding factors. Second, we rely on self-reports of health behaviors, and reporting bias can be assessed with more objective behavioral measures. Third, this analysis is based on a sample of IT employees. Although focusing on a single occupational group in a single organization minimizes confounding due to variability in the nature of jobs or employing organizations, it reduces the generalizability of the results. Fourth, these data do not allow us to directly examine how couples negotiate their temporal work arrangements. Future research is needed to shed light on the concrete process through which both spouses' work times intersect with one another to shape health behaviors.

Despite these limitations, this study is unique in that it examines employees' health behaviors through the lens of both respondents' and their spouses' work hours. In doing so it makes an important contribution to the literature on time use in families, underscoring the value of adopting modified constrained choice and couple frameworks that view individual behaviors as socially embedded in gendered relationships. Practically, this suggests future assessments of the benefits of altering working conditions should take into account their impact on spouses as well as employees in order to illuminate the larger couple contexts of both work hours and health behaviors. Our findings also suggest that gendered expectations of work and family roles shape the extent to which time is allocated in ways that disadvantage women, pointing to the need for future research considering gender-specific constraints at work and at home, including built-in expectations about and rewards for long hours. In order to fully address risk factors such as obesity, it is crucial for health interventions to address organizational-level working conditions and couple dynamics that promote healthy diets and exercise behaviors.

Acknowledgments

Special acknowledgement goes to Extramural Staff Science Collaborator, Rosalind Berkowitz King, PhD and Lynne Casper, PhD for design of the original Workplace, Family, Health and Well-Being Network Initiative. Our thanks to the TOMO managers and employees who participated in the study and facilitated our research; to Rachel Magennis, Kimberly Fox, Holly Whitesides, and Laurie Pasricha for facilitating data collection and conducting field research; and to Sarah Kalsbeek and Leslie Erickson of RTI for coordinating survey data collection.

Appendix Table A

Descriptive Statistics of Five Couple-Level Work-Hours Arrangements, by Gender

	Respondent Sole Breadwinner (spouse not working)	Moderate Commitments (both < 45)	Respondent Primary Breadwinner (R >= 45, spouse < 45)	Spouse Primary or Equal Breadwinner (R < 45, spouse >= 45)	High commitments (both >= 45)
Men Respondents					
%total income brought in by respondent	90.0%	81.9%	80.0%	68.3%	62.8%
Respondent Income	96772	88636	97945	91190	97067
Wive's Income	16993	28058	33510	60348	72300
N	71	57	99	21	42
Women Respondents					
%total income brought in by respondent	73.9%	55.7%	63.4%	45.8%	51.3%
Respondent Income	92316	76928	92857	77891	88247
Husband's Income	37398	71490	64481	101406	91817
N	14	22	35	25	43

Note: TOMO employees and their spouses were asked “What is your approximate gross income for the past 12 months from this job, that is, income earned before taxes, social security, and so on, but not including benefits? Please do not include your spouse or partner's income.” If they refused to give an exact number, a second question was asked to solicit an income range, from “less than $49,999,” “$50,000 - $59,000” up to “$140,000 - $149,999,” and “more than $150,000.” We apply the following algorithm to assign income values: (1) self-report from the first income question was used, and, if missing, (2) responses to the second question were used, with a midpoint coding for the middle categories and a gender-specific interval regression to decide the value of the open-ended category (for “less than $49,999,” $43,300 and $42,430 were assigned for 1 man and 5 women, respectively, and for “more than $150,000,” $155,824 was assigned for 2 men), and (3) if income was still missing, for TOMO employees, we use their salary information from company salary database.

Appendix Table B

Logistic Models Predicting Fast Food Consumption and Exercise

	Fast Food Consumption		Exercise	
	Model 1: Men	Model 2: Women	Model 3: Men	Model 4: Women
Work Conditions				
Respondent Work Hours			0.033 (0.033)	-0.043 (0.058)

	Fast Food Consumption		Exercise	
	Model 1: Men	**Model 2: Women**	**Model 3: Men**	**Model 4: Women**
Spouse Employed			0.848* (0.408)	1.033 (1.003)
Spouse Work Hours (see Note 1)			-0.010 (0.022)	-0.029 (0.022)
Couple-Level Work Conditions (Ref. = High Commitments, see Note 2 for other pairwise comparison results)				
Respondent Sole Breadwinner (spouse not working)	0.223 (0.576)	0.383 (0.849)		
Moderate Commitments (both < 45)	-0.008 (0.578)	0.740 (0.880)		
Respondent Primary Breadwinner (R >= 45, spouse < 45)	0.110 (0.464)	0.149 (0.617)		
Spouse Primary or Equal Breadwinner (R < 45, spouse >= 45)	1.500 (1.028)	1.586+ (0.960)		
Covariates				
Age	-0.051 (0.218)	-0.539* (0.266)	0.070 (0.205)	1.209*** (0.359)
Age Squared	-0.000 (0.002)	0.006* (0.003)	-0.001 (0.002)	-0.014***(0.004)
Race/Ethnicity (Ref. = Non-Hispanic White)				
Asian (Asian Indian, Other Asian, and Pacific Islander)	-0.574 (0.419)	-1.433+ (0.820)	-1.286** (0.442)	-0.896 (0.686)
Black, Hispanic, and More than One Race	1.090 (1.110)	0.864 (0.858)	-1.335* (0.578)	-0.790 (0.799)
Parental Status (Ref. = No Children at Home)				
Youngest Child at Home < 6	-0.014 (0.519)	2.245* (0.966)	-0.276 (0.507)	-1.115 (1.110)
Youngest Child at Home >= 6	0.303 (0.445)	1.655* (0.645)	0.274 (0.452)	-1.206 (0.771)
Respondent does Care for Adult Relatives	0.582 (0.485)	0.007 (0.554)	-0.421 (0.406)	0.258 (0.428)
Respondent College Educated	-0.626 (0.545)	0.771 (0.531)	0.426 (0.584)	-0.989 (0.751)
Respondent Income (Logged)	0.056 (0.920)	-2.916+ (1.522)	-0.637 (0.984)	1.232 (1.267)
Respondent Schedule Control	0.114 (0.283)	0.336 (0.379)	0.105 (0.230)	0.097 (0.495)
Interviewed after Merger Announcement	0.024 (0.373)	0.434 (0.427)	-0.046 (0.370)	1.379* (0.629)
Physical Functioning	-3.113+ (1.852)	-1.928 (1.513)	1.008 (0.681)	-0.209 (0.342)
Psychological Distress	0.027 (0.059)	0.063 (0.076)	-0.052 (0.063)	-0.091 (0.082)
Spouse Physical Health Symptoms	-0.139 (0.173)	0.246 (0.374)	0.258 (0.210)	-0.080 (0.493)
Spouse Psychological Distress	0.012 (0.053)	-0.023 (0.077)	-0.029 (0.051)	-0.084 (0.082)
Constant	19.238 (13.891)	48.217* (19.156)	-0.279 (10.027)	-31.948+ (17.330)
Observations	290	139	290	139

Notes: 1. Coefficients for spouse work hours and its squared term are estimated from models consisting of respondents whose spouses have a paid job. But we obtain similar results if spouse work hour is coded as 0 for respondents whose spouses do not have a paid job.

2. Robust standard errors in parentheses.

*** p<0.001,

** p<0.01,

* p<0.05,

+ p<0.1

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Highlights

- Fast food consumption is affected by husbands' work hours in a nonlinear way.
- Neo-traditional arrangements promote men's but constrain women's ability to engage in exercise.
- Different health behaviors may have distinct antecedents.
- Schedule control of one partner expands the choices of the other, but in a gendered way.

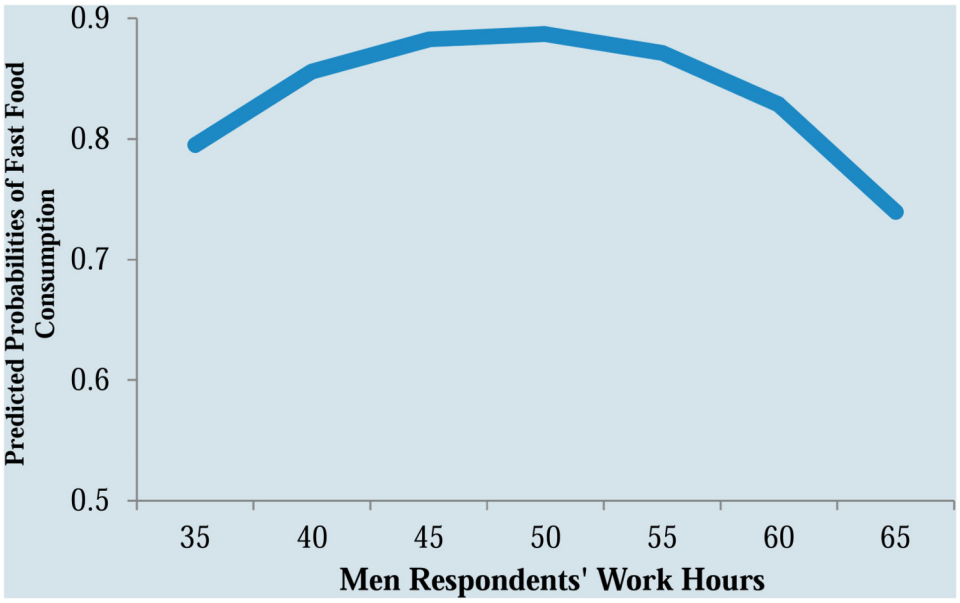

Figure 1. Predicted Probabilities of Fast Food Consumption for Men Respondents, by Their Own Work Hours (Other Variables Held at Mean)

Figure 2. Predicted Probabilities of Fast Food Consumption for Women Respondents, by Husbands' Work Hours (Other Variables Held at Mean)

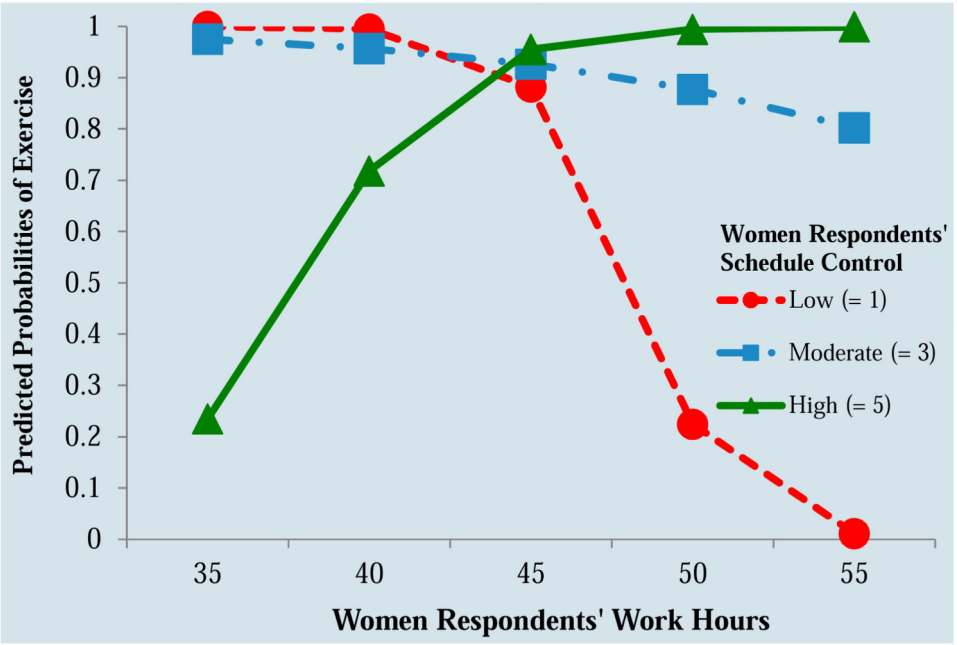

Figure 3. Women Respondents' Schedule Control Moderates the Relationship between Work Hours and Exercise (Other Variables Held at Mean)

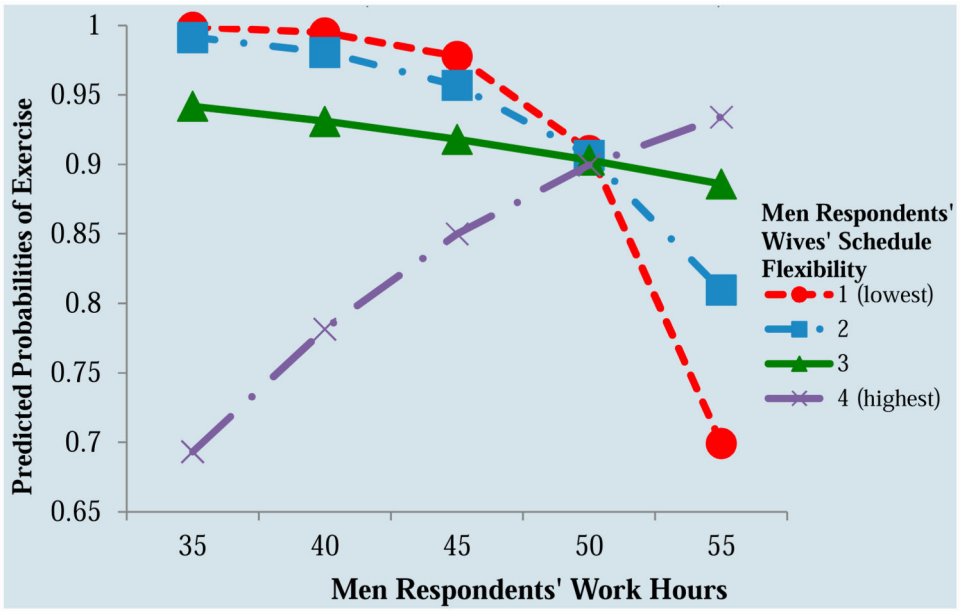

Figure 4. Men Respondents' Wives' Schedule Flexibility Moderates the Relationship between Respondents' Work Hours and Exercise (Other Variables Held at Mean)

Table 1

Descriptive Statistics of Respondents, IT Employees at TOMO

	Total (N = 429)		Men (N = 290)		Women (N = 139)		
	Mean/%	Std. Dev.	Mean/%	Std. Dev.	Mean/%	Std. Dev.	
Outcomes							
No Fast Food Consumption	81%		83 %		76 %		+
Exercise At least Some Time	84%		85%		83%		
Focal Explanatory Variables							
Respondent Work Conditions							
Work Hours	46.25	6.56	46.44	6.65	45.83	6.38	
Respondent Schedule Control (1-5)	3.6	0.68	3.61	0.67	3.59	0.69	
Spouse Work Conditions							
Spouse Employed	80%		76%		90%		***
Spouse Work Hours (n = 344)	40.47	12.99	37.7	13.18	45.33	11.13	***
Spouse Schedule Flexibility (1-4) (n = 343)	3.33	0.7	3.33	0.72	3.32	0.66	
Couple Work Conditions							
Respondent Sole Breadwinner (spouse not working)	20%		24%		10%		***
Moderate Commitments (both < 45)	18%		20%		16%		
Respondent Primary Breadwinner (R >= 45, spouse < 45)	31%		34%		25%		+
Spouse Primary or Equal Breadwinner (R < 45, spouse >= 45)	11%		7%		18%		***
High commitments (both >= 45)	20%		14%		31%		***
Covariates							
Age	46.01	8.72	46.17	9.01	45.68	8.1	
Race/Ethnicity							
Non-Hispanic White	68%		69%		66%		
Asian (Asian Indian, Other Asian, and Pacific Islander)	22%		24%		19%		
Black, Hispanic, and More than One Race	9%		7%		15%		**
Children at Home							
No children at home	33%		32%		36%		
Youngest child at home < 6	23%		26%		17%		*
Youngest child at home >= 6	44%		42%		47%		

	Total (N = 429)		Men (N = 290)		Women (N = 139)		
	Mean/%	Std. Dev.	Mean/%	Std. Dev.	Mean/%	Std. Dev.	
Respondent does Care for Adult Relatives	22%		18%		29%		**
Respondent College Educated	80%		84%		71%		***
Respondent Yearly Income	92279.95	19565	95212	19331	86163	18679	***
Interviewed after Merger Announcement	47%		47%		47%		
Physical Functioning (0-100)	94.48	12.29	94.9	11.39	93.61	14	
Psychological Distress (6-30)	10.73	3.23	10.36	2.9	11.5	3.72	***
Spouse Physical Health Symptoms (5-25)	9.59	0.84	9.57	0.86	9.65	0.81	
Spouse Psychological Distress (6-30)	10	3.22	10.09	3.26	9.82	3.15	

Notes: 1. TOMO is a pseudonym for a Fortune 500 company with a large IT workforce.

2. The last column reports *t*-test results comparing gender differences.

*** $p<0.001$,

** $p<0.01$,

* $p<0.05$,

+ $p<0.1$

Table 2
Logistic Models Predicting Fast Food Consumption and Exercise

	Fast Food Consumption		Exercise	
	Model 1: Men	**Model 2: Women**	**Model 3: Men**	**Model 4: Women**
Work Conditions				
Respondent Work Hours	0.372^{+} (0.192)	-0.030 (0.042)		
Respondent Work Hours Squared	-0.004* (0.002)			
Spouse Employed	-0.084 (0.389)	0.091 (0.810)		
Spouse Work Hours (see Note 1)	0.003 (0.016)	0.226* (0.089)		
Spouse Work Hours Squared (see Note 1)		-0.002** (0.001)		
Couple-Level Work Conditions (Ref. = High Commitments, see Note 2 for other pairwise comparison results)				
Respondent Sole Breadwinner (spouse not working)			-0.872 (0.679)	-2.073* (1.032)
Moderate Commitments (both < 45)			-0.359 (0.644)	-0.712 (0.952)
Respondent Primary Breadwinner (R >= 45, spouse < 45)			0.467 (0.736)	-0.813 (0.803)
Spouse Primary or Equal Breadwinner (R < 45, spouse >= 45)			-0.730 (0.895)	-2.501*** (0.760)
Covariates				
Age	-0.036 (0.217)	-0.449^{+} (0.269)	0.052 (0.198)	1.468*** (0.404)
Age Squared	-0.000 (0.002)	0.006^{+} (0.003)	-0.001 (0.002)	-0.016*** (0.004)
Race/Ethnicity (Ref. = Non-Hispanic White)				
Asian (Asian Indian, Other Asian, and Pacific Islander)	-0.661 (0.416)	-1.173 (0.765)	-1.271** (0.445)	-1.073 (0.744)
Black, Hispanic, and More than One Race	1.280 (1.097)	0.749 (0.818)	-1.272* (0.559)	-1.477 (0.977)
Parental Status (Ref. = No Children at Home)				
Youngest Child at Home < 6	-0.004 (0.535)	2.405** (0.898)	-0.305 (0.523)	-0.238 (1.180)
Youngest Child at Home >= 6	0.280 (0.453)	1.881** (0.618)	0.303 (0.475)	-0.760 (0.762)
Respondent does Care for Adult Relatives	0.500 (0.480)	0.130 (0.532)	-0.425 (0.431)	0.430 (0.517)
Respondent College Educated	-0.485 (0.506)	0.754 (0.517)	0.416 (0.597)	-0.912 (0.714)
Respondent Income (Logged)	-0.055 (0.993)	-3.453* (1.510)	-0.732 (1.001)	-0.445 (1.156)
Respondent Schedule Control	0.080 (0.298)	0.301 (0.368)	0.037 (0.243)	0.101 (0.430)
Interviewed after Merger Announcement	0.059 (0.366)	0.556 (0.424)	-0.089 (0.373)	1.600* (0.657)
Physical Functioning	-4.458* (2.112)	-2.119 (1.615)	0.927 (0.791)	-0.175 (0.298)
Psychological Distress	0.028 (0.064)	0.041 (0.070)	-0.052 (0.065)	-0.173^{+} (0.093)
Spouse Physical Health Symptoms	-0.174 (0.180)	0.229 (0.331)	0.270 (0.225)	-0.029 (0.372)
Spouse Psychological Distress	0.013 (0.054)	-0.033 (0.075)	-0.031 (0.050)	-0.100 (0.086)
Constant	17.587 (15.125)	54.420** (18.205)	3.811 (10.553)	-20.573 (17.375)
Observations	290	139	290	139

Notes: 1. Coefficients for spouse work hours and its squared term are estimated from models consisting of respondents whose spouses have a paid job. But we obtain similar results if spouse work hour is coded as 0 for respondents whose spouses do not have a paid job.

2. For men: respondent sole breadwinner and respondent primary breadwinner ($p < .01$); respondent primary breadwinner and spouse primary or equal breadwinner ($p < .1$). For women: respondent primary breadwinner and spouse primary or equal breadwinner ($p < .05$); moderate commitments and spouse primary or equal breadwinner ($p < .1$).

3. Robust standard errors in parentheses.

*** $p<0.001$,

** $p<0.01$,

* $p<0.05$,

+ $p<0.1$

Table 3

Logistic Models Predicting Exercise, Respondents' and Spouses' Schedule Control/ Flexibility as Moderators

	Exercise			
	Model 1: Men	**Model 2: Women**	**Model 3: Men**	**Model 4: Women**
Work Conditions				
Respondent Work Hours (centered)	0.043 (0.035)	0.045 (0.052)	0.027 (0.030)	-0.052 (0.073)
Respondent Schedule Control (centered)	0.109 (0.236)	0.485 (0.671)	0.153 (0.235)	0.081 (0.460)
Respondent Work Hours (centered) * Schedule Control (centered)	0.061 (0.038)	0.268*** (0.079)		
Spouse Schedule Flexibility (centered)			-0.497 (0.352)	-0.195 (0.481)
Respondent Work Hours (centered) * Spouse Schedule Flexibility (centered)			0.129** (0.048)	-0.055 (0.060)
Spouse Employed	0.928 (0.746)	2.102 (1.785)		
Spouse Work Hours (see Note 1)	-0.005 (0.017)	-0.024 (0.025)		
Covariates				
Age	0.090 (0.205)	1.279** (0.393)	0.114 (0.199)	1.219** (0.376)
Age Squared	-0.001 (0.002)	-0.015*** (0.004)	-0.002 (0.002)	-0.014** (0.004)
Race/Ethnicity (Ref. = Non-Hispanic White)				
Asian (Asian Indian, Other Asian, and Pacific Islander)	-1.297** (0.437)	-1.494* (0.652)	-1.409** (0.448)	-0.882 (0.732)
Black, Hispanic, and More than One Race	-1.311* (0.566)	-0.442 (0.808)	-1.251* (0.556)	-0.897 (0.744)
Parental Status (Ref. = No Children at Home)				
Youngest Child at Home < 6	-0.341 (0.507)	-1.577 (1.243)	-0.428 (0.507)	-0.919 (1.117)
Youngest Child at Home >= 6	0.201 (0.454)	-1.649+ (0.940)	0.266 (0.427)	-1.109 (0.742)
Respondent does Care for Adult Relatives	-0.449 (0.412)	0.662 (0.522)	-0.517 (0.418)	0.316 (0.449)
Respondent College Educated	0.446 (0.594)	-0.428 (0.772)	0.423 (0.593)	-0.853 (0.851)
Respondent Income (Logged)	-0.674 (1.033)	-0.082 (1.285)	-0.830 (1.017)	1.387 (1.416)
Interviewed after Merger Announcement	-0.007 (0.379)	1.630* (0.729)	-0.050 (0.373)	1.380* (0.613)
Physical Functioning	0.915 (0.677)	-1.519 (1.283)	1.342* (0.624)	0.045 (0.278)
Psychological Distress	-0.064 (0.065)	-0.141+ (0.074)	-0.052 (0.062)	-0.100 (0.085)
Spouse Physical Health Symptoms	0.242 (0.218)	0.171 (0.523)	0.307 (0.205)	-0.072 (0.435)
Spouse Psychological Distress	-0.024 (0.050)	-0.110 (0.101)	-0.027 (0.051)	-0.094 (0.080)
Constant	2.003 (10.572)	-17.104 (20.004)	1.117 (10.392)	-36.243+ (19.774)
Observations	290	139	289	139

Notes: 1. Spouse work hours are coded as 0 for respondents whose spouses do not have a paid job. 2. Robust standard errors in parentheses.

*** p<0.001,

** p<0.01,

* p<0.05,

+ p<0.1