

When Can Employees Have a Family Life? The Effects of Daily Workload and Affect on Work–Family Conflict and Social Behaviors at Home

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This article presents a longitudinal examination of antecedents and outcomes of work-to-family conflict. A total of 106 employees participating in an experience-sampling study were asked to respond to daily surveys both at work and at home, and their spouses were interviewed daily via telephone for a period of 2 weeks. Intraindividual analyses revealed that employees' perceptions of workload predicted work-to-family conflict over time, even when controlling for the number of hours spent at work. Workload also influenced affect at work, which in turn influenced affect at home. Finally, perhaps the most interesting finding in this study was that employees' behaviors in the family domain (reported by spouses) were predicted by the employees' perceptions of work-to-family conflict and their positive affect at home.

Keywords: work–family conflict, affect spillover, workload, job demands, affective states

Organized work composes a large percentage of most individuals' activities and constitutes a fundamentally important aspect of most people's lives. As a result, work activities and experiences have important implications for individuals' psychological well-being, including their affective experience at work and their off-work experiences and behaviors. A U.S. Census Bureau press release stated that the nation's labor force includes 147.9 million individuals, of whom 68.7 million are women, suggesting a substantial number of dual-career families. In addition, 28% of these individuals work more than 40 hr per week (U.S. Census Bureau, 2004). Given the substantial amount of time individuals spend working and the preponderance of dual-career families, research on the effects of increased workload on various indicators of employee well-being, including work–family balance, has become increasingly important (e.g., Kossek & Ozeki, 1998; Mesmer-Magnus & Viswesvaran, 2005).

Attention to the balancing of work and family roles has traditionally focused on conflict or interference between these roles (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005). Work–family conflict occurs when pressures from the work and family domains are mutually incompatible (Greenhaus & Beutell, 1985). This conflict

exists when: (a) time devoted to the requirements of one role makes it difficult to fulfill requirements of another; (b) strain from participation in one role makes it difficult to fulfill requirements of another; and (c) specific behaviors required by one role make it difficult to fulfill the requirements of another. (Greenhaus & Beutell, 1985, p. 76)

In addition, Netemeyer, Boles, and McMurrian (1996) suggested that there are two distinct forms of work–family conflict: work-to-family and family-to-work conflict (see also Byron, 2005; Eby et al., 2005; Kossek & Ozeki, 1998; Mesmer-Magnus & Viswesvaran, 2005). Work-to-family conflict is “interrole conflict in which the general demands of, time devoted to, and strain created by the job interfere with performing family-related responsibilities” (Netemeyer et al., 1996, p. 401). Family-to-work conflict refers to the reverse. Time demands and psychological strain created by employees' efforts devoted to family activities interfere with performing work responsibilities. In the past two decades, a large number of studies have examined the link between work and family either by focusing exclusively on work-to-family effects or by considering bidirectional influences (Eby et al., 2005). Although many have recognized the existing potential of bidirectional influences and have attributed similar processes to family-to-work conflict (e.g., Netemeyer et al., 1996), by far the greatest amount of attention has focused on work-to-family conflict (see Eby et al., 2005).

Recent meta-analyses on the consequences of work-to-family conflict for individuals and organizations (Kossek & Ozeki, 1998;

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Mesmer-Magnus & Viswesvaran, 2005) have shown that typical outcomes of work-to-family conflict include lower family and career satisfaction, lower organizational attachment and commitment, greater hostility at home, and a variety of negative physiological and psychological health outcomes when conflict is high (see also Eby et al., 2005). However, there are several limitations associated with past research on work-family conflict that we address in the present study. In the next sections, we describe the purpose of this study and explain the features of this research that are aimed at addressing the limitations of previous research.

Purpose

The present study contributes to the work-family literature in several ways. First, we examined the work-family interface over time. Despite the fact that processes linking job and family roles are inherently dynamic (Judge & Ilies, 2004; Repetti, 1989), cross-sectional research designs have dominated past work-family research. Such designs do not address real-time, dynamic relationships because they miss potential day-to-day variability in role demands, affect, stress, and conflict, all of which may be substantial (Bolger, DeLongis, Kessler, & Schilling, 1989; Demerouti, Bakker, & Bulters, 2004; Ilies & Judge, 2002; Williams, Suls, Alliger, Learner, & Wan, 1991). The design of the present study included repeated daily measures of work demands, affect, conflict perceptions, and behavior collected over a period of 2 weeks. This allowed us to address within-person fluctuations in work and family experiences, feelings, and behaviors, rather than focusing exclusively on between-individual associations among constructs from the two life domains.

Second, we obtained daily measures of work characteristics from employees at work, employees' affective states at both work and home, employee perceptions of work-family conflict when they are at home, and social activities in the family setting from employees' spouses. A common limitation in the work-family literature is that measures of employee work-family conflict are often obtained in a single setting—either at work or at home. It has been argued that because employees typically perform family responsibilities in the family life sphere, the experience of work-to-family conflict and its outcomes should be assessed at home (Netemeyer et al., 1996). In contrast, employees' ratings of various workplace factors such as workload or role overload should be provided at work to minimize biases associated with retrospective ratings (Judge & Ilies, 2004). Thus, the solution to this problem is not to advocate one setting over another, but to match the setting in which constructs are assessed with the nature of the constructs themselves. We designed the present study accordingly.

Third, we went beyond employee perceptions of work and family events and feelings by also gathering behavioral data from the employees' spouses. As mentioned, the relationships in this study were tested at the within-individual level (e.g., do employees report increased work-to-family conflict on days when they report higher workloads, compared to days when they report lower workloads?). Even though a few work-family studies have used similar dynamic research designs (Butler, Grzywacz, Bass, & Linney, 2005; Sonnentag & Bayer, 2005; Williams & Alliger, 1994; Williams et al., 1991), these studies are limited by common rater variance problems; furthermore, none of these studies have examined actual behavior in the family domain. In the present study,

these limitations were addressed by collecting daily reports of employees' behaviors at home from their spouses.

Finally, the guiding model for this research extended the work-family conflict literature by including negative as well as positive states. Although the work-family conflict literature often relies upon a spillover mechanism to link individuals' work and home life, this literature focuses mostly on negative affective states and their behavioral manifestations (withdrawal, anger expression; e.g., Repetti, 1989). This negative orientation is consistent with a focus on conflict; however, focusing solely on negative spillover ignores the fact that the two environments (job and family) possess both positive and negative events that co-occur in those environments and transfer (spill over) at similar times. We addressed this issue by considering both positive and negative affect as well as measuring potentially rewarding behaviors in the family domain.

Theoretical Background and Hypothesized Relationships

Different constructs reflecting employees' workload, such as the number of hours spent at work or perceptions of role overload, have been among the most often studied predictors of work-to-family conflict (see Byron, 2005; Eby et al., 2005). In this article, we propose a model (see Figure 1) in which workload has affective consequences that influence work-to-family conflict over time. Affective events theory (AET; Weiss & Cropanzano, 1996) offers a relevant framework from which to structure the proposed model. This theory proposes that various events and activities at work have immediate affective consequences; in other words, they generate emotional reactions and changes in employees' affective states. In turn, affective states are linked to the formation of relatively stable work attitudes and also influence employees' behavior. AET "draws much needed attention to streams of events that can unfold in workplaces" (Brief & Weiss, 2002, p. 284). Our work here is one of the first attempts to investigate behavior and fluctuations in affect at work over time as they relate to the work-family interface.

First, this study examines how workload influences affect at work. Next, both workload and affect at work are hypothesized to influence work-to-family conflict and affect at home, and these two constructs from the family domain are further expected to influence social behaviors at home. Because the behaviors examined in this study concern social activities that occur in the family domain, this model extends AET across work and family domains. In the following section, we review conceptual and empirical support for the links proposed in the model.

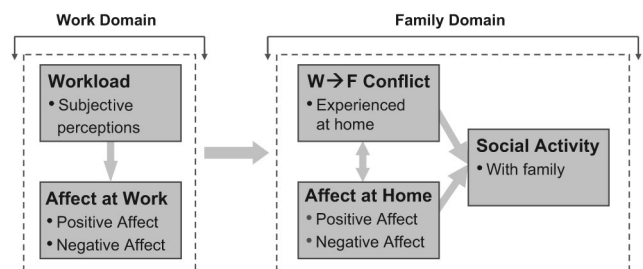


Figure 1. Conceptual model. W = work; F = family.

Workload, Affect, and Work–Family Conflict

Our first hypothesis considered the relationship between workload and experienced affect, both at work and at home. Workload reflects the demands placed upon employees in their jobs and thus has often been referred to as a *job stressor* (Spector, Dwyer, & Jex, 1988). Numerous theoretical treatments of job stressors have associated them with negative outcomes, many of them affective in nature. Although workload is not a job stressor by definition, according to the effort–recovery model (Meijman & Mulder, 1998), meeting work demands that require high effort expenditure leads to psychological *load reactions* that decrease well-being, especially when recovery is insufficient. One of the load reactions that has received attention in research on the effort–recovery model is negative affect, and research has generally shown a positive relationship between workload and negative affect (e.g., Geurts, Kompier, Roxburgh, & Houtman, 2003; Repetti, 1993; Rothbard, 2001; Schulz, Cowan, Pape Cowan, & Brennan, 2004; Williams, & Alliger, 1994).

A great deal of social psychological research using within-persons designs, such as diary studies, Web-based surveys, and handheld computers, has been consistent with the general hypothesis that individuals' negative affect not only varies considerably from day to day but is also affected by stressful events across days (e.g., Bolger et al., 1989; Clark & Watson, 1988; van Eck, Nicolson, & Berkhof, 1998). In a 12-week study, Potter, Smith, Strobel, and Zautra (2002) extended this research to the workplace, finding that the frequency of stressful work events each week was positively related to employees' negative affect at the end of the week. In addition, research on the effects of daily work stressors and job demands on strain symptoms has suggested support for a direct link between workload and negative affect (Totterdell, Wood, & Wall, 2006; Zohar, 1999). Therefore, the existing literature suggests workload influences employees' negative affect over time.

With respect to domain-specific affect, an emergent stream of research has suggested that work demands impact negative affect both at work and at home. Recent cross-sectional research has found that higher workloads are associated with both negative affect at work and negative affect at home (Geurts et al., 2003), although these effects have not been consistently supported (e.g., Rothbard, 2001).¹ Furthermore, in a 3-day study of married couples, Schulz et al. (2004) found that the pace of daily work (measured within individuals across time using a workload scale) promotes end-of-day negative affect (at work) and behavioral expressions of anger and withdrawal at home (see also Repetti, 1989, for a similar study). Conceptually, high perceived workloads influence employees' affective experiences at home because the affect experienced at work spills over onto the affect experienced at home (Edwards & Rothbard, 2000), an issue which we revisit shortly. However, workload can also influence individuals' affect at home through other mechanisms that prevent effective recovery, such as limiting psychological detachment from work (e.g., thinking about the backlog for the next day; see Sonnentag & Bayer, 2005). Therefore, we hypothesized the following:

Hypothesis 1: Within individuals (across days), high workload (rated at work) will positively influence negative affect experienced (a) at work and (b) at home.

We expected that, in addition to influencing negative affect at work and at home, high workload should also lead to increased work-to-family conflict. A recent meta-analytic investigation of cross-sectional studies found that work-to-family conflict correlated .26 with number of hours worked and .65 with perceptions of role overload (Byron, 2005). In addition, Demerouti et al. (2004) employed a more sophisticated modeling strategy by testing cross-lagged structural models using data obtained in a three-wave longitudinal study. They found support for their hypotheses in that work pressure had positive effects on employees' reports of work-home interference. However, given the between-individual design of this study, it is unclear whether this relationship would hold within individuals over time. Butler et al. (2005) partially addressed this issue in an experience-sampling study that found a positive relationship between job demands and work–family conflict across days, but both constructs were measured at the same time with retrospective end-of-day reports. Thus, by implementing a repeated measures design requiring reports at different times of the day and by using multiple raters, the present study provides a more rigorous test of the workload–work-to-family conflict relationship.

Additionally, the two workload constructs considered in Byron's (2005) meta-analysis (number of hours worked and role overload) address different aspects of work demands that have potentially different effects on employees' family lives. The construct measured via number of hours worked concerns time conflict between work and family, and time conflict represents only one of the three forms of work–family conflict defined by Greenhaus and Beutell (1985). In contrast, role overload (as indicated by high ratings of subjective workload) should lead to work-to-family conflict through strain or behavioral conflict, the remaining two forms of work–family conflict. If these three forms of conflict are distinct, then predictors of strain-based conflict, such as the workload perceptions considered in this study, should have an influence on general work-to-family conflict that is not confounded with the influence of work hours. That is, the psychological distress or strain that individuals experience due to high workload should account for variance in work-to-family conflict over and above the variance accounted for by the amount of time individuals spend at work. We should note here that even though long work hours can have important psychological and physiological consequences (e.g., Rau & Triemer, 2004), our substantive focus was the role of workload perceptions on the work–family interface:

Hypothesis 2: Within individuals, (a) perceptions of high workload and (b) the amount of time spent at work will positively influence work-to-family conflict experienced at home after work.

Affective Spillover Across Work and Family Domains

Edwards and Rothbard (2000) defined spillover as the “effects of work and family on one another that generate similarities between the two domains” (p. 180), and they further identified mood spillover as an important causal mechanism linking the work

¹ Rothbard (2001) found that time demands at work positively correlated with work negative affect but not with home negative affect.

and family domains (see also Lambert, 1990; Zedeck, 1992). Judge and Ilies (2004) suggested that a dynamic affect reinforcement process supported by mood-congruent cognitions may explain affective spillover from work to home. In this process, an employee's positive moods and emotions at work activate positive cognitive nodes in the employee's memory and thus elicit positively biased memories and positive interpretations of the day's work events, which further generate pleasant thoughts and evaluations (Judge & Ilies, 2004; see also Rusting & DeHart, 2000). In contrast, negative moods and emotions lead to unpleasant thoughts and evaluations via mood-congruent associations.

According to this position, when employees recall their workday after work, their previously activated interpretations of work events will trigger mood-congruent judgments at home. Therefore, the valence (positive or negative) of the retrospective evaluations regarding work will influence the affective states experienced by employees at home. Cunningham (1988) presented suggestive evidence for such a dynamic reinforcement effect of positive mood. He found that positive mood was associated with an increased interest in talking about the job. Based on Cunningham's findings, employees might be more likely to carry their work-related thoughts into the family domain and talk about their jobs with family members on days when their mood was positive at work. Furthermore, these individuals could be more likely to recall and discuss the events that influenced their mood at work, and this recollection will have a positive effect on their mood at home.

Although the work-to-home affective spillover process is inherently dynamic (it operates over time), most research has tested spillover at the between-individual level of analysis (e.g., Rothbard, 2001). Such research designs can test, for example, whether employees who generally experience high positive affect at work also experience high positive affect in the family, but they cannot test whether employees experience more positive affect in the family following a good day at work. However, there is some empirical evidence supporting work-to-home affective spillover at the within-individual level of analysis. Specifically, Williams and Alliger (1994) found evidence for work-to-family spillover but only for distress and fatigue (not for elation and calmness). More relevant for our investigation were findings by Judge and Ilies (2004); these authors focused on broad affective states (rather than specific affects) and found support for work-to-home spillover of both positive and negative mood. Thus, we expected the following:

Hypothesis 3: Within individuals, affect experienced at work will spill over onto affect experienced later at home, such that work positive affect will positively impact home positive affect, and work negative affect will positively impact home negative affect.

Hypothesis 4: Work-to-home affective spillover will explain, in part, the within-individual effect of workload on home negative affect in that work negative affect will partially mediate this effect.

Predicting Social Behavior in the Family

Having addressed the spillover between affect at work and home, we now examine the implications of home affective states on the activities in which an individual engages with his or her

family. Longitudinal studies have shown support for a positive relationship between positive affect and time spent in social activities (e.g., Clark & Watson, 1988; Watson, 1988, 2000). In addition, in a recent large-scale study of employed women, Kahneman, Krueger, Schkade, Schwarz, and Stone (2004) found that participants experienced the highest levels of positive affect and the lowest levels of negative affect when engaged in social activities with friends, relatives, spouses, and children. These findings suggest that positive affect and negative affect are related to the social interactions in which one engages, especially when those interactions are with people closest to the individual (e.g., family and friends). Similarly, Lucas and Diener (2001, p. 344) suggested that positive affect increases social behavior "only if the social behavior is rewarding and active" and identified interactions with friends and family as a specific example of such rewarding social behavior.

Behaviors and activities that take place in the family domain (e.g., going to a movie with one's spouse, visiting friends together) are an important theoretical outcome of work-to-family conflict, because conflict is presumed to prevent employees from engaging in such behaviors that fulfill their family role. However, previous work-family research has not examined such explicit behaviors as outcomes of work-to-family conflict. The two work-family studies that did address employee behaviors in the family domain (Repetti, 1989; Schulz et al., 2004) focused on aversive behaviors such as social withdrawal and behavioral expressions of anger; in addition, these studies did not focus specifically on work-to-family conflict perceptions.

Conceptually, the positive relationship between positive affect and rewarding social behavior is a key element in the Behavioral Facilitation System (Depue & Iacono, 1989; Watson, 2000). Research on this system has suggested that humans engage in appetitive behaviors that are necessary for survival, including social activity (see Watson, 2000), and that Behavioral Facilitation System activation is associated with elevated levels of positive affect and motivates individuals to engage in such appetitive behaviors. Indeed, empirical evidence from experimental research supports the contention that positive affect motivates individuals to engage in social behavior. For example, Cunningham (1988) showed that individuals who received a positive mood induction indicated significantly greater interest in social activities as compared to a neutral-mood control group.

On the basis of the theory and research described previously, we predicted that employees would engage in more social behaviors in the family domain when their positive affect was elevated. Even though social behavior should be more strongly associated with positive affect (positively) than with negative affect (negatively; Watson, Clark, McIntyre, & Hamaker, 1992), there is some evidence that negative affect is related to social behavior as well (e.g., Cunningham, 1988; Kahneman et al., 2004; Watson et al., 1992). Furthermore, even though positive and negative affect are, in theory, orthogonal dimensions in the affect circumplex, in practice, scores on these constructs are negatively related. Therefore, we predicted a negative relationship between employees' daily negative affect levels and a positive relationship between positive affect levels and employees' engagement in social activities in the family domain:

Hypothesis 5: Within individuals, home affective experiences will predict social behavior in the family domain such that on days when employees experience (a) high positive affect (at home) or (b) low negative affect (at home), they will engage in more social activities, compared to days when their positive affect is low or negative affect is high.

Recent theoretical work aimed at summarizing the field's understanding of work–family conflict has suggested that conflict between roles affects performance in those roles (Edwards & Rothbard, 2000). As noted, one explanation for this effect on role performance is the time-based conflict argument. When employees have little time to spend in their family role, their engagement in behaviors that fulfill the family role is limited. However, an alternative explanation is that other sources of conflict, such as work stressors, can result in distress, fatigue, and affective states that subsequently impact one's performance or behavior in the family domain. In other words, work–family conflict can also be characterized by strain-based conflict. Such “strain-based conflict . . . exists when strain in one role affects one's performance in another role” (Greenhaus & Beutell, 1985, p. 80). Thus, strain-based conflict influences employees such that they are unable to operate at an optimal level and are therefore unlikely to perform family-related responsibilities as effectively as they might in situations devoid of such conflict.

Most research on work-to-family conflict has focused on subjective outcomes such as life, job, and marital satisfaction. There has been much less attention on attaching work–family conflict to measures of actual behavior (Eby et al., 2005; Kossek & Ozeki, 1998; Mesmer-Magnus & Viswesvaran, 2005). The experience of strain taxes an individual's resources and would therefore be expected to influence the energy with which the individual seeks out social interaction and behavioral engagement. As individuals experience increasing levels of work-to-family conflict, they are likely to withdraw from social activities and interactions; therefore, their engagement in social behaviors in the family will be limited. Furthermore, if the strain-induced effect on social behavior is distinct from the effect of time-based conflict, the effect of work-to-family conflict on social behavior in the family domain should be independent of the amount of time the employees spend at home. Accordingly,

Hypothesis 6: (a) Within individuals, the experience of work-to-family conflict will predict social behavior in the family domain such that on days when employees experience increased work-to-family conflict, they will engage in fewer social activities, compared to days when they experience decreased work-to-family conflict. (b) The within-individual effect of work-to-family conflict on social behavior in the family domain will be independent of the daily amount of time spent at home by employees.

Method

Sample

Our initial sample consisted of 150 full-time employees of a large midwestern university who were recruited via e-mail from a university employee pool including administrative professionals, administrative supervisors, and clerical/technical professionals. An analysis of job titles revealed that participants held jobs dealing

with administrative or secretarial work (37%), research activities (17%), information technology (15%), curriculum and development (11%), communications and coordination (10%), accounting (4%), and other types of work (6%).

Because one of the key criteria examined in this study involved spousal ratings of social interaction, only participants with spouses who were willing to answer daily phone interviews were eligible to participate in the study. Both the focal participants and their spouses received payment for their participation in the study. Of the university employees signed up to participate in the study, 144 completed an initial survey requesting demographic information. Upon the start of the second phase of the study, which involved three daily surveys for 2 weeks, 38 individuals declined to continue participating in the study for various reasons including their spouse not being able to participate in the study and new work assignments. Analyses comparing these 38 individuals with the remaining 106 participants showed that the two groups were not significantly different in terms of gender, age, tenure, or number of children living at home. Therefore, 106 employees who provided demographic information continued their participation in the second phase of the study, which involved multiple daily surveys. Of these participants, 76% were female; participants were on average 43.3 years old, and the median number of children living with them was one ($M = 1.01$). The average job tenure was 13.7 years.

Procedure

As noted, the focal participants (the employees) first responded to a general one-time survey at the beginning of the study. Then, for 2 weeks, they were asked to respond to two daily surveys from work and one daily survey in the evening from home. Employees' spouses also responded to surveys on each day of the study, in the evening. The first at-work survey was administered before lunch via an Internet interface and assessed the daily workload experienced by employees. The second work survey, administered near the end of the work day, was also completed using an Internet interface. This survey assessed employees' positive and negative affective states at the time the survey was completed (i.e., at the end of the workday). The Internet interface restricted access to the surveys such that participants could only answer each survey within 1 hr (before or after) of the specified survey time for both surveys (11 a.m. and 4 p.m.).

The home survey for the focal participants measured positive and negative affect, as well as employees' evaluation of the work-to-family conflict they were experiencing for the day; these measures were obtained via paper diaries that participants were instructed to fill out between the hours of 7 and 9 p.m. and return to the researchers via campus mail the next morning. The employees' spouses were interviewed via telephone between 7 and 9 p.m. each evening by a survey research organization hired by the researchers. The spouses were asked (a) to respond to questions regarding the extent to which the employee had engaged in family-related social behaviors that evening, (b) to estimate the amount of time the employee had spent at home (after returning from work), and (c) to remind their spouses to complete their home survey. A total of 943 interviews were

conducted over the 2 weeks of the study (10 working days), out of a total of 1,060 possible interviews.²

We chose a 2-week period for the daily surveys based on the recommendation of Reis and Wheeler (1991, p. 287) who contended that “the 2-week record-keeping period is assumed to represent a stable and generalizable estimate of social life.” Because of missing data, not all participants who started the experience-sampling phase of the study could be included in the final sample. Our within-individual analyses required at least 2 days of complete data (i.e., two work surveys, a home survey, and a spouse survey for each day) for each participant. We were able to match work, home, and spouse surveys for at least 2 days for 84 participants. For these participants, we obtained a total of 510 daily records, for an average of 6.07 days per participant out of a maximum of 10 days ($SD = 2.09$ days).

Measures

Workload and time spent at work. To measure employees' workload we used eight job demands items taken from Janssen (2001) and one item assessing workload directly (i.e., “The workload is high for this day”). The measure was modified slightly in order to focus on daily, rather than global, evaluations of workload. The scale was administered daily before noon and included items such as “Today I have too much work to do for my job,” “I will have to work under time pressure today,” and “Today, I have to deal with a work backlog.” Responses were given on a scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Across days, the average internal consistency reliability was .93. In the evening survey, participants reported the number of hours that they had spent at work that day.

Positive and negative affect. State affect at work was measured daily in the afternoon using the Positive and Negative Affect Schedule (Watson & Clark, 1994). We presented participants with a list of 20 adjective descriptors of affect and required them to indicate the extent to which they felt each of the adjectives indicated on the measure. Sample adjective descriptors from the positive scale are “interested,” “enthusiastic,” and “determined.” Sample adjectives from the negative scale include “upset,” “irritable,” and “hostile.” Responses were given on a scale ranging from 1 = *very slightly or not at all* to 5 = *extremely*. The average internal consistency reliability across the measurement occasions was .94 for at-work positive affect and .86 for at-work negative affect. Home positive and negative affect were also measured using the Positive and Negative Affect Schedule and followed the procedure described here. The average internal consistency reliability across the evening measurements was .93 for at-home positive affect and .86 for at-home negative affect.

Work-to-family conflict. Each evening during the study, participants reported their work-family conflict using four items taken from Kopelman, Greenhaus, and Connolly (1983). Items were modified to reflect the timely nature of the surveys, for example, “Today my work has taken up time that I would have liked to spend with family/friends.” Responses were given on a scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*, and the measure showed an average reliability of .73.

In addition to the daily measurement of work-to-family conflict, a global, one-time work-to-family conflict survey was administered to the spouses of the focal participants at the beginning of the

study. We collected these data to validate the self-reported work-to-family conflict scores with respect to the general levels of conflict experienced by the employees. The items were, in essence, the same as those used to measure daily work-to-family conflict, but the wording was modified to ask the respondents to rate the extent to which the focal participants (the employees) generally experience work-family conflict (e.g., “Often times, he/she is preoccupied with work even while he/she is here at home”). The internal consistency reliability for this measure was .80.

Social behaviors and time spent at home. Family-related social behaviors were measured with a 13-item scale consisting of various social activities such as “Went on an outing together, such as to a park or a football game,” “Visited relatives or friends together,” “Ate a meal together,” and “Exercised or played sports together.” The items for this scale were taken from Watson et al. (1992) and modified to fit the purpose of this study (i.e., to examine behaviors reflecting joint activities that the spouses could report). The participant's spouse indicated each evening that the couple had either participated in that activity (*yes*) or that they had not participated in the activity that evening (*no*). As noted, the measure was administered via a phone interview conducted by a professional survey research organization with extensive experience in conducting phone interviews. This method eliminated the threats of both method and same-source bias. The number of activities reported by the spouses was summed to obtain an overall social behavior score for each evening. During each phone interview, respondents were also asked to estimate the amount of time that their spouse (the focal participant) had spent at home after work that day.

Analyses

To test the within-individual hypotheses, we used hierarchical linear modeling (HLM; Bryk & Raudenbush, 1992). The HLM analyses involved simultaneous estimation of regression models at two distinct levels of analysis. At the first level (Level 1), the daily scores for the outcomes of each within-individual hypothesis (e.g., work-to-family conflict, family social behaviors) were regressed on the daily score for the hypothesized predictors (e.g., work-to-family conflict on workload, family social behaviors on positive affect) across days. In all of the models that we estimated, we centered the Level 1 predictor variable scores relative to each individual's mean score on the respective variable. Therefore, for each individual, the predictor scores represented departures from the mean, and the mean of these departure scores for each individual was zero. Because there was no between-individual variance in the centered scores (i.e., the between-individual variance represents variation in individuals' means, and all means were zero), the estimates from the Level 1 HLM regressions represented within-individual effects that were not confounded by any possible differences among the individuals in the study (personality, rating tendencies, etc.).

At Level 2, HLM estimated the pooled Level 1 parameters (intercept and betas) for all of the individuals in the sample (i.e.,

² In a pilot study, we tested whether participants responded differently when responding via phone survey versus paper-based survey. We found no significant differences in response tendencies between the two samples.

Table 1
Between-Individual Correlations Among Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Hours at work	7.66	1.39	—								
2. Workload	2.82	0.71	.35**	—							
3. Work positive affect	3.02	0.79	.11	-.04	—						
4. Work negative affect	1.22	0.32	-.07	.20*	-.11	—					
5. Home positive affect	2.43	0.74	.00	-.23*	.80**	-.10	—				
6. Home negative affect	1.21	0.34	-.11	.13	-.15	.81**	-.15*	—			
7. Work-family conflict	2.49	0.72	.31**	.60**	-.18	.20*	-.36**	.26**	—		
8. Social behaviors at home ^a	2.62	1.41	-.21*	-.27**	.01	.00	.12	.03	-.27**	—	
9. General work-family conflict ^b	2.63	0.80	.03	.28**	-.08	.03	-.11	.09	.23*	-.10	—

Note. For Variables 1 through 8 (within-individual variables), the correlations were computed using individuals' aggregated scores. Variable 9 reflects general, one-time ratings. *N*s = 91 to 106 (pairwise).

^aEmployees' engagement in social behaviors at home was rated daily by their spouses via a phone interview. ^bGeneral work-family conflict ratings were provided by the employees' spouses on a paper survey that was returned directly to the researchers.

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed).

when no Level 2 predictors were specified, the Level 2 regression was reduced to estimating an intercept). Intuitively, such an analysis (e.g., examining the effect of workload on work negative affect) is similar to a regression analysis conducted on a data set that includes all of the individuals' data for each day (stacked vertically), with the negative affect variable containing the departures from each individual's mean negative affect. In this sense, the Level 1 analyses estimated an intercept and beta values for each individual in the sample, and the Level 2 estimates were equivalent to a weighted average (by the number of observations provided by each participant) of individuals' intercept and beta values.

Results

Table 1 presents the intercorrelations between all of the variable scores considered in this study. It is important to note that, across individuals, the average daily workload scores were strongly correlated with work-to-family conflict as reported by both the focal employee ($r = .60, p < .01$) and his or her spouse ($r = .28, p < .01$). In addition, the average daily self-reports of work-to-family conflict were significantly correlated with spousal reports of general work-to-family conflict ($r = .23, p < .05$). This pattern of results is consistent with previous research on workload and work-to-family conflict (see Byron, 2005) and offers evidence for convergent validity between the average daily work-to-family conflict scores provided by the focal employee and the same scores obtained via a different method (general evaluation vs. average repeated measures) from a different source (spouse).

Before testing the within-individual hypotheses, it was necessary to investigate whether there was sufficient within-individual variance in the construct scores (i.e., did work-to-family conflict scores vary sufficiently across days to justify modeling day-to-day variation?). Table 2 presents the results from null HLM models that were estimated for each of the constructs measured daily. These models did not specify any predictors, and therefore they only partitioned the total variance in each construct score into within- and between-individual components. Similar to previous research (e.g., Ilies & Judge, 2002), a substantial proportion of the total variance in affect scores (between 21.2% and 47.1%) was

caused by day-to-day variation. More importantly, more than 44% of the total variance in the workload scores was due to variation across days (within-individual variance); similarly, work-to-family conflict scores varied substantially within individuals (more than 40% of the total variance was within-individual variance). Finally, an even larger proportion of variance in the spousal reports of family social behavior (71.9%) was caused by within-individual variation across days. In sum, the constructs measured daily showed substantial day-to-day variation, which indicated that attempting to explain the patterns of within-individual variation in the scores on these constructs was appropriate and meaningful.

Table 3 presents the HLM results of the analyses conducted to test the hypotheses. First, in support of Hypothesis 1, workload predicted both work negative affect ($\beta = .10, p < .05$) and home negative affect ($\beta = .08, p < .05$).³ Second, Hypothesis 2 received strong support. The workload scores reported by individuals at work (before noon) strongly predicted work-to-family conflict scores reported in the evening from home ($\beta = .28, p < .01$). Furthermore, upon introducing the number of hours spent at work in the regression predicting work-to-family conflict with workload scores, the effect of workload diminished only slightly and remained statistically significant ($\beta = .26, p < .01$). These results show that subjective workload has an effect on work-to-family conflict that is largely independent of the effect of the amount of time spent at work.

Hypothesis 3 predicted that both positive and negative work affect would spill over onto family life by influencing affect at home. The results supported these predictions in that work affect scores predicted respective home affect scores across days ($\beta = .38, p < .01$, and $\beta = .14, p < .05$, for positive and negative affect, respectively). It is worth noting the differential strength of the positive and negative spillover effects in that the spillover of positive affect was particularly strong. Next, we examined whether negative spillover was responsible, at least in part, for the effect of workload on home negative affect. Indeed, the effect of workload

³ In the interest of parsimony, we present only standardized Level 1 regression coefficients in the text; Table 3 presents both unstandardized and standardized estimates.

Table 2
Parameter Estimates and Variance Components of Null Models for Level 1 Variables

Dependent variable	Intercept (γ_{00})	Within-individual variance (ρ^2)	Between-individual variance (τ_{00})	Percent variability within individual
Hours at work	7.61**	2.23	1.42	61.1
Workload	2.76**	0.31	0.39	44.3
Work positive affect	2.88**	0.18	0.65	21.2
Work negative affect	1.23**	0.07	0.11	37.1
Home positive affect	2.37**	0.24	0.53	31.2
Home negative affect	1.19**	0.08	0.09	47.1
Work-family conflict	2.46**	0.31	0.45	40.8
Social behaviors	2.64**	2.66	1.04	71.9

Note. $N = 84$. γ_{00} = pooled intercept representing average level of dependent variable across individuals; ρ^2 = within-individual variance in dependent variable; τ_{00} = between-individual variance in dependent variable. Percent variability within individuals was computed as $p^2 \div (p^2 + \sigma)$.
** $p < .01$.

on home negative affect substantially decreased in magnitude and became statistically nonsignificant ($\beta = .05$, *ns*) upon introducing work negative affect into the Level 1 regression equation, indicating that work negative affect mediated the relationship between workload and home negative affect. Therefore, Hypothesis 4 was supported by the data.

With respect to the behavioral criterion, Hypothesis 5 predicted that employees' affective states at home would predict their social behavior in the family as reported by their spouses, and Hypothesis 6 predicted that work-to-family conflict would likewise predict social behavior. In support of Hypothesis 5a, home positive affect had a strong positive effect on social behavior within individuals ($\beta = .23$, $p < .01$). However, Hypothesis 5b was not supported in that home negative affect was not significantly related to social behavior reports ($\beta = .02$, *ns*). Finally, Hypothesis 6a was sup-

ported by the data. Across the days of the study, the work-to-family conflict scores reported by the focal participants significantly predicted social behavior reports provided by spouses ($\beta = -.09$, $p < .05$). Hypothesis 6b was also supported, in that the effect of work-to-family conflict was slightly attenuated but remained statistically significant ($\beta = -.07$, $p < .05$) when controlling for the amount of time spent at home by the employee.

Discussion

This study examined the effects of daily workload on employee affective states, work-to-family conflict, and home social behaviors over a representative 2-week period. Results were largely supportive of the hypotheses, finding that workload (both in terms of hours worked and employee perceptions of workload) was

Table 3
Hierarchical Linear Modeling Results of Within-Individual Models

Dependent variable (Level 1 predictor)	\hat{B}	SE	T	$\hat{\beta}$
Work negative affect				
Workload	.05	.02	2.00*	.10
Home negative affect				
Workload	.04	.02	1.99*	.08
Work-family conflict (home)				
Workload	.28	.06	4.91**	.28
Work-family conflict (home)				
Hours at work	.05	.02	2.86**	.14
Workload	.26	.06	4.60**	.26
Home positive affect				
Work positive affect	.44	.06	7.39**	.38
Home negative affect				
Work negative affect	.15	.08	1.76*	.14
Social behaviors (home; spouse rated)				
Home positive affect	.76	.17	4.59**	.23
Home negative affect	.12	.32	0.37	.02
Social behaviors (home; spouse rated)				
Work-family conflict (home)	-.27	.13	-2.00*	-.09
Social behaviors (home; spouse rated)				
Time spent at home (spouse rated)	.08	.01	9.34**	.24
Work-family conflict (home)	-.21	.10	-2.09*	-.07

Note. \hat{B} = unstandardized hierarchical linear modeling coefficient, $\hat{\beta}$ = standardized hierarchical linear modeling coefficient. All predictors were centered at individuals' means to eliminate between-individual variance. $N_s = 468$ to 510.

* $p < .05$. ** $p < .01$ (directional, one-tailed).

related to negative affect (both at work and at home) and employee perceptions of work-to-family conflict. Moreover, employee social behaviors at home were predicted by both work-to-family conflict and home positive affect.

At least four findings from this study have important theoretical and/or managerial implications. First, we found that daily workload is an important predictor of affective states and work-to-family conflict. Thus, previous findings linking workload to these outcomes (e.g., Byron, 2005; Geurts et al., 2003) cannot be entirely attributed to stable individual differences among employees or to differences between jobs. Those factors may account for between-person variance in affect and work-family conflict, but they cannot account for the substantial within-person variance we found across the days of the study. Thus, it is not simply *chronic workload*—"the more permanent level of workload that is present every day" (Sonnetag & Bayer, 2005, p. 396)—but also day-specific workload that affects the degree to which employees experience negative affect and work-to-family conflict. Thus, managers must recognize that, even if their employees do not have high chronic workloads, high workload on any specific day negatively impacts employees' moods and increases work-family conflict on that day.

Second, we found that it is not simply objective workload—in terms of the number of hours worked—but also subjective perceptions of workload that influence affective states and work-family conflict. As noted by Greenhaus and Beutell (1985), time conflict is only one of the three forms of work-family conflict. This implies that either the strain of a heavy workload or the behavioral conflict created by a heavy workload (the other two forms of conflict) contributes to negative outcomes over and above the time conflict caused by that workload. An implication for managers is that even if their employees are not working additional hours when they are under heavy workloads, the strain or psychological distress caused by heavy workloads may still lead to higher work-family conflict.

Third, we found evidence for affective spillover between the work and home domains. The affective states that participants experienced at work tended to persist after they went home for the day. Again, this finding is not attributable to stable individual differences or job characteristics, as these were controlled for through the research design and analysis. Rather, as an individual's mood at work varies from day to day, his or her mood at home in the evening varies commensurately. This finding is consistent with past empirical research (e.g., Judge & Ilies, 2004; Williams & Alliger, 1994), as well as with Edwards and Rothbard's (2000) theoretical model of spillover. Moreover, we found that work negative affect mediates the relationship between workload and home negative affect, indicating that negative moods induced by heavy workloads are carried home at the end of the day.

Finally, we found that perceptions of work-to-family conflict impact the degree to which employees engage in social activities with their spouses and children. This is a key finding of the study, particularly because the reports of social behaviors came not from the employees themselves but from their spouses. Employees who reported high amounts of work-to-family conflict on particular days were less likely to interact socially with their families, even when we controlled for the amount of time the employee spent at home. This suggests that employees withdraw from their families on days that they experience high levels of work-family conflict.

Together with the finding regarding affective spillover, the present evidence suggests that negative experiences at work (i.e., heavy workloads, negative moods) negatively impact employees' home lives. As with the spillover of negative experiences, positive experiences at work are also likely to carry over into the home domain. A clear implication for managers is that by enhancing employees' work experiences, they are likely to enhance employees' after-work experiences as well.

Limitations and Future Research

Because we used spousal ratings of employees' behaviors, the social behaviors that we assessed in the family domain had to be limited to activities that could be rated by the participants' spouses. However, many other behaviors and activities in the family domain such as exercising, reading, and working on hobbies are relevant to employees' well-being and may also be influenced by the psychological strain induced by work demands. Furthermore, for the behaviors that we did consider, we did not assess their quality or importance. To the extent that family interactions of higher importance or quality take a longer time, and therefore one can engage in fewer high-quality behaviors during the same amount of time, the results might be different for different classes of behaviors. In order to examine these issues, future research should investigate a broader range of behaviors in the family domain and use quality or importance ratings for these behaviors.

In building support for the effects of workload perceptions and work hours on work-to-family conflict, we argued that workload perceptions (as indicators of effort intensity or role overload) should influence strain-based conflict, and work hours should influence time-based conflict. However, the four-item measure of work-to-family conflict that we used (taken from Kopelman et al., 1983) assesses general work-to-family conflict (includes items relevant to both time- and strain-based conflict), and thus rigorous testing of such specific effects was not possible in this study.⁴ Examining specific time- and strain-based effects by considering various workload constructs and measuring work-to-family conflict with distinct reliable scales assessing time- and strain-based conflict would be a worthwhile endeavor for future research.

Following previous work on affective spillover (Judge & Ilies, 2004), we focused on the broad affective states of positive and negative affect. Given the likelihood that lower level affective states (e.g., guilt and joviality) are more strongly linked to work-family conflict and behavior at home as compared to broad positive and negative affect, research that examines spillover and its implications for work-family conflict by focusing on lower level affective states (see Watson & Clark, 1994) is needed.

Positive spillover and other work-to-family enhancement processes have traditionally been neglected in the work and family literature (Greenhaus & Powell, 2003; MacDermid, Seery, &

⁴ In post hoc analyses, we computed a strain-based conflict score with two items from the measure we used that described strain, and a time-based conflict score using one item that clearly referred to time-based conflict. Within individuals, workload scores predicted both measures, and hours at work predicted only the single-item time-based conflict measure. However, these results are difficult to interpret because of the low reliability of the two-item strain-based conflict scale ($\alpha = .47$) and the fact that time-based conflict was assessed with a single item.

Weiss, 2002). Although we did not measure work-to-family enhancement, we found strong evidence for a positive connection between work and family roles, in that positive affect experienced at work influenced positive affect at home over time. In fact, the spillover of positive affect was much stronger than that of negative affect in these data. Given the connection between home positive affect and family social behaviors, it seems that positive affect spillover has the potential to enrich individuals' work and family lives. On the basis of these results, we recommend that future research measure work-to-family enhancement and further examine the mechanisms by which positive affect spillover from work to home enhances employees' family lives. Finally, because positive affect spillover is desirable, future research should examine factors that facilitate or promote such spillover.

With respect to the affect-behavior links, following AET (Weiss & Cropanzano, 1996), our conceptual reasoning implicitly assumed that positive affect causes social behavior. However, it is entirely possible that the social behaviors we examined increased employees' positive affect, especially given our focus on potentially rewarding behavior. In this respect, although we used different sources to collect the affect and behavior reports, our data do not speak to the issue of causality. Nevertheless, we believe our finding that employees' engagement in social behaviors in the family domain was associated, over 10 days, with their positive affect at home (positively) and with their perceptions of work-to-family conflict (negatively) is an important step in examining the implications of work-family processes for actual behaviors in the family role.

Regarding measurement issues, we found evidence that a large percentage of the total variance in perceptions of work-to-family conflict (in our data, more than 40%) was attributable to day-to-day variations within individuals. This suggests that research on work-family conflict using only a between-individual design is missing almost half of the total variance in work-family conflict. However, given the relatively low correlation between aggregated work-family conflict scores and general reports of work-family conflict provided by spouses, it is possible that aggregated daily reports of work-family conflict do not measure exactly the same construct that is assessed with general reports. We cannot address this issue with the current data; therefore, we recommend that future research address this issue by examining the convergence between daily reports and general perceptions of work-family conflict, perhaps using the methodology proposed by Ilies and Judge (2004), who assessed the convergence between aggregated ratings of state job satisfaction and general, trait-like ratings. These authors found that when a sufficient number of state satisfaction ratings were used to compose the aggregate score (10 or more), this aggregate score correlated .55 to .60 with general ratings of job satisfaction.

One issue that limits the generalizability of these results concerns the possibility that our sample was subject to self-selection bias. It is possible that employees who experience very high workloads would be less likely to participate in intensive research such as this. However, the extent to which respondents generally experience high workload does not affect the within-individual results presented in this article because we estimated the effects of within-person variations in daily workload on within-person variation in affect and conflict, and thus analyses controlled for the average level of workload experienced by each respondent. But it

is possible that the extent to which workload, affect, and conflict fluctuated over the study period for the employees in our sample was different from the extent to which these fluctuate in the general population.

In developing our model, we implicitly assumed a series of mediated causal paths through which work variables influence behavior in the family domain through affect. Even though we did find some evidence supporting proximal mediation (e.g., workload influenced home affect via affective spillover), more distal effects (e.g., workload to social behaviors in the family) were not supported by the data. Similarly, although affective experiences are important criteria by themselves as indicators of well-being, affect explains or mediates part of the effects of situational factors (e.g., workload) on employee behavior (Weiss & Cropanzano, 1996). In these data, although negative affect at home was hypothesized to be influenced by workload (and this effect was supported), only positive affect influenced social behavior in the family domain. In this respect, perhaps the differential effects of positive and negative affect on the type of social behavior that we examined (i.e., potentially rewarding behaviors) explain the lack of support for the more distal mediated paths. Future research should include potentially rewarding work events and activities that might influence behaviors in the family through positive affect spillover in a more comprehensive model of work-to-family influences.

Finally, the hypothesized relationship between negative affect and social activities at home was not supported. A potential explanation for this lack of support was pointed out by a reviewer and includes the notion that there might be classes of social behaviors or activities at home that occur for different reasons. That is, some activities are spontaneous and others are not (e.g., routine or scheduled activities). For example, an individual experiencing negative affect may not engage in spontaneous activities such as visiting friends or going on a walk with his or her spouse. However, that individual may participate in scheduled activities such as meeting with a church group or taking his or her children to music lessons despite the experienced negative affect. To address this possibility, future research should distinguish among various types of activities (e.g., spontaneous vs. nonspontaneous or scheduled activities) to further understand the relationship between negative affect and social behaviors.

Contributions

The findings reported in this article enhance researchers' understanding of how work and family roles are connected in at least three ways. First, we disentangled the effects of the number of hours spent by employees at work and the perceptions of workload intensity on work-to-family conflict by estimating these effects within an integrated framework. Our finding that both of these variables significantly influence work-to-family conflict supports the existence of a psychological strain process (associated with high workloads) that prevents employees from fulfilling their family roles. Interestingly, within-individual research on recovery from work that examined both work hours and time pressure showed that only work hours predicted psychological detachment from work across days (Sonnentag & Bayer, 2005). It is then possible that high workload or time pressure causes work-to-family conflict not because the strain associated with these demands hinders detachment, but through a more direct effect on

fatigue. Alternatively, it is possible that Sonnentag and Bayer did not find a link between time pressure and psychological detachment because their design had relatively low power at the intraindividual level (participants completed daily surveys for 3 days). Further examination of the effects of work hours and workload on work-to-family conflict, fatigue at home, and psychological detachment would be a fruitful avenue for future research.

Second, we contribute to the literature on work and family by providing more accurate tests of the processes linking work and family roles as compared to previous empirical research on the topic. That is, our results were obtained via within-individual analyses, and the construct measures for these analyses were obtained at different times of the day with appropriate temporal precedence for the relationships tested. Conceptually, work-to-family processes are dynamic (Rothbard, 2001); thus, these processes should be studied within individuals across time. Because cross-sectional tests of dynamic processes are influenced by respondents' dispositional characteristics, such tests may be inaccurate. Examining work-to-home affective spillover with cross-sectional data, for example, suggests very strong effects. In fact, the appropriate estimates—obtained in intraindividual models—show that these spillover effects are much weaker. In our data, across participants, positive/negative affect at work correlated with positive/negative affect at home at .80/.81. In contrast, the intraindividual estimates for spillover were much lower, at .38 and .14 for positive and negative affect, respectively (these are standardized regression coefficients from intraindividual regressions with a single predictor).

Third, our findings contribute to the literature on work-to-family conflict by validating perceptual reports of work-to-family conflict with independent ratings of employees' actual behavior in the family domain. This is an important contribution clearly showing that work-to-family conflict meaningfully impacts employees' lives. Furthermore, by using daily spousal reports of employee behavior in the family, our analyses eliminated the possibility that common rater variance was responsible for the association between work-to-family conflict and behavior. From a theoretical standpoint, by focusing on potentially rewarding family role behaviors, this study complements previous work that examined the effects of work demands on family behaviors indicating social withdrawal or expressions of anger and aggression (e.g., Repetti, 1989). Future research should examine which work behaviors are hindered by family-to-work conflict and perhaps validate perceptual measures of family-to-work conflict by using peer reports of affect-driven behaviors that are potentially rewarding (e.g., citizenship behaviors, social interactions with colleagues; see Ilies, Scott, & Judge, 2006; Weiss & Cropanzano, 1996).

Following Repetti's (1989) suggestion that social withdrawal might act as a recovery behavior, future research should examine the replenishing properties of more active social behaviors such as those considered in this study. Social activities are thought to generate positive affect (Watson et al., 1992), and participating in social activities has been found to enhance end-of-day affective well-being in intraindividual research on employees (Sonnentag, 2003). Thus, engaging in social behaviors in the family domain may be particularly important for persons who require daily emotional replenishment. However, for employees with jobs that have an important interpersonal component (e.g., customer service), it is possible that off-work social activities may further draw on their

emotional resources (Sonnentag & Natter, 2004). However, it is not clear that such an effect would exist when employees interact with family members (i.e., interactions with family members might require less or no emotional labor). Future research that examines the recovery implications of both social activities with the family and social involvement outside the family would address these issues.

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