RESEARCH ARTICLE

Work Hours and Work–Family Conflict: The Double-edged Sword of Involvement in Work and Family

Russell A. Matthews[1]*†, Cathleen A. Swody[2] & Janet L. Barnes-Farrell[3]

[1]Louisiana State University, 213 Audubon Hall, Baton Rouge, LA, USA
[2]Leadership Research Institute, Storrs, CT, USA
[3]University of Connecticut, Storrs, CT, USA

Abstract

In this study, we examine the role of work hours in a model that incorporates involvement in both work and family with experiences of work–family conflict and subjective well-being. Self-report data were collected from 383 full-time employees and analysed using structural equation modelling techniques. Results demonstrate that role salience was positively related to behavioural involvement with work and with family. In turn, behavioural family involvement was negatively related to work hours and family-to-work conflict, while behavioural work involvement was positively related to work hours. Behavioural family involvement was also positively related to life satisfaction. Finally, both family-to-work conflict and end-of-workday strain were negatively related to life satisfaction. Our results provide insight into unexpected problems that might arise when employees place overly high importance on work and work long hours. This study serves as a foundation for researchers to examine the interplay of time spent with work and family with other aspects of the work–family interface. Copyright © 2011 John Wiley & Sons, Ltd.

Received 30 July 2010; Accepted 27 September 2011; Revised 21 September 2011

Keywords
work hours; role salience; role involvement; work–family conflict; work strain; life satisfaction

***Correspondence**
Russell A. Matthews, Department of Psychology, Louisiana State University, Baton Rouge, LA 70803, USA.
†Email: Matthews@lsu.edu

Published online 3 November 2011 in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/smi.1431

Working long hours can significantly influence how people manage their work and family lives (Burke, 2006; Carlson & Perrewe, 1999; Grandey, Cordeiro, & Michael, 2007; Greenhaus, Bedeian, & Mossholder, 1987; Major, Klein, & Ehrhart, 2002; Nielson, Carlson, & Lankau, 2001; Valcour, 2007). Specifically, individuals who work extended hours report more work–family conflict (Byron, 2005; Grandey et al., 2007; Greenhaus et al., 1987; Major et al., 2002; Nielson et al., 2001; Shamir, 1983). However, with some notable exceptions (cf. Major et al., 2002), studies examining the work–family interface typically conceptualize work hours as a covariate rather than as a variable of interest (e.g. Höge, 2009). Because of the potential negative implications that working long hours can have for managing the work–family interface, we agree with Major et al. (2002) that explicitly examining the role of work hours in how people integrate work and family is important and have made work hours the central focus of our study. In addition, we have framed the study to consider whether processes that drive the decision to work long hours are also associated with positive well-being, creating a double-edged sword for workers and employers.

To better understand the role of work hours we draw on identity theory (Stryker & Burke, 2000) and conservation of resources theory (Hobfoll, 1989) to examine three related issues. Firstly, we identify role salience and behavioural role involvement as important variables that predict the allocation of time, as a finite resource, to the work role. Secondly, we examine how work hours explain the influence of behavioural involvement on work–family conflict; specifically, we examine whether role salience contributes to negative experiences of work–family conflict (via behavioural involvement and work hours) while simultaneously contributing to positive experiences of well-being (producing the potential for the aforementioned double-edge sword). Finally, we examine the influence of work hours on strain-related and general well-being outcomes (i.e. end-of-workday strain and life satisfaction). Figure 1 provides a summary of the full model. The guiding conceptual argument being proposed here, based on identity theory and conservation of resources theory, is that that value an individual places on work and family influences the resource allocation process in terms of the number of hours worked. In turn, these constructs have important implications, both positively and negatively, on individual well-being.

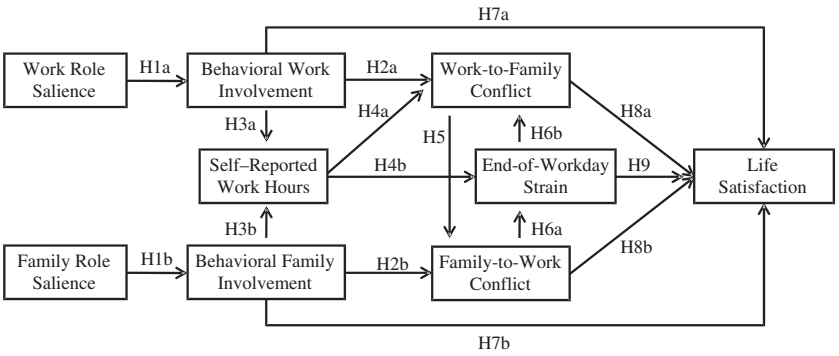

Figure 1. Conceptual model of work hours, involvement and work-family conflict

It should be noted that because longer work hours is our core variable of interest, we test our model with a sample of full-time workers (i.e. individuals working at least 40 h a week) because they are more likely to work long hours than, for example, part-time employees. In defining this sample of interest, we hone our examination of the role of work hours and avoid adding to the inconsistent findings of the work–family literature that have resulted from undefined samples of interest (Kossek, Baltes, & Matthews, 2011).

Role salience and involvement as key variables that influence work–family conflict

To better explain why individuals invest additional hours in their work roles, we draw on identity theory. Identity theory emphasizes how an individual's attitudes toward a role influence the behaviours that he or she engages in that role (Stryker & Burke, 2000). In identity theory, role salience is conceptualized as the degree to which an individual defines his or her self-concept in a specific role and the degree to which value is placed on enactment of that role (e.g. work and family; Cinamon & Rich, 2002; Greenhaus & Beutell, 1985). An individual can demonstrate high salience for both work and family roles, high in work and low in family, low in work and high in family or low salience in both. Research suggests that how individuals conceptualize themselves influences how they prefer to use their time (i.e. allocate resources; Barnett & Gareis, 2000; Reynolds & Aletraris, 2007; Thompson & Bunderson, 2001).

Within identity theory, the more valued a role is to an individual's self-concept (i.e. role salience), the more effort or resources the individual devotes to that role and the more likely he or she is to engage in that role's activities (Burke & Reitzes, 1981; Rothbard & Edwards, 2003). We propose that these activities can be indexed in terms of *behavioural involvement*, which is an individual's quality of involvement, frequency of involvement and actual activities related to a role. For example, if being a family member is important to an individual (i.e. high family salience), we expect the individual to be actively involved in family activities (i.e. high behavioural family involvement), such as engaging in frequent deep and meaningful conversations with family members. As such, *behavioural involvement* is related to, but distinct from, role salience; we propose that behavioural involvement is an observable manifestation of the psychologically based role salience.

Hypothesis 1a: Work salience is positively related to behavioural work involvement.

Hypothesis 1b: Family salience is positively related to behavioural family involvement.

Role salience has consistently been shown to predict work–family conflict (Byron, 2005; Ford, Heinen, & Langkamer, 2007), which is defined as a bidirectional inter-role conflict where the demands of functioning in work and family are incompatible in some way (Greenhaus & Beutell, 1985). For example, an individual might experience work interfering with his or her family (i.e. work-to-family conflict) and/or family interfering with work (i.e. family-to-work conflict). This interference between work and family roles can be time-based, strain-based or behaviour-based (Greenhaus & Beutell, 1985). In the present study, the most relevant type of conflict is strain-based, in which, because of strain, one role interferes with effective performance of behaviours in another role.

Drawing on identity theory, we posit *behavioural* role involvement as a primary mechanism through which role salience (i.e. psychological involvement) influences work–family conflict; in doing so, we address a significantly understudied issue in work–family research—causal mechanisms (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005). When an individual becomes more behaviourally involved, he or she invests more resources to that role (Aryee, 1992). On the basis of conservations of resources theory, resources are defined as 'objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for the attainment of these objects' (e.g. energy; Hobfoll, 1989, p. 516). However, behavioural involvement has a cost.

Dedicating more resources to a role increases the likelihood of strain-based conflict with other roles because of insufficient resources to meet the obligations of multiple roles (Goode, 1960). In line with the conservation of resources theory, we predict that behavioural role involvement is positively related to work–family conflict.

Hypothesis 2a: Behavioural work involvement is positively related to work-to-family conflict.

Hypothesis 2b: Behavioural family involvement is positively related to family-to-work conflict.

To examine how work hours explain the influence of behavioural role involvement on work–family conflict, we argue that time is a finite resource that can be divided among multiple roles to meet obligations. Previous conceptual work suggests that behavioural involvement is a precursor to time spent in a role (Gutek, Searle, & Klepa, 1991; O'Driscoll, Ilgen & Hildreth, 1992; Parasuraman, Purohit, Godshalk, & Beutell, 1996). Thus, consistent with prior conceptual work suggesting that behavioural work involvement is positively correlated with time spent at work (Frone, 2003), we expect that behavioural work involvement will be positively associated with work hours. Because time is finite, we also expect behavioural family involvement to correspond with fewer work hours.

Hypothesis 3a: Behavioural work involvement is positively related to work hours.

Hypothesis 3b: Behavioural family involvement is negatively related to work hours.

Work hours, end-of-workday strain and work–family conflict

To understand the role of work hours in explaining the influence of behavioural role involvement on other outcomes, we again draw on conservation of resources theory, which proposes that people seek to acquire and retain resources (Hobfoll, 1989). Grandey and Cropanzano (1999) noted that conditions (e.g. marital status), personal characteristics (e.g. self-esteem) and energies (e.g. flexible work schedules) are relevant resources in the examination of the work–family interface. Consistent with theory, we expect that as an individual works longer hours, the individual's overall available time resources drain, and by extension, more energy is dedicated to work. This effectively limits resources available for family. Thus, consistent with past research (Frone, Yardley, and Markel, 1997; Gutek et al., 1991; O'Driscoll et al., 1992; Parasuraman et al., 1996), we predict that work hours directly relates to work-to-family conflict; if an individual spends more time at work, he or she has fewer resources to dedicate to his or her family, which contributes to work-to-family conflict.

Furthermore, because a person's work activities directly consume personal resources, we predict that work hours correspond to end-of-workday strain. *End-of-workday strain* is the degree to which an individual experiences physical and mental strain (e.g. fatigue, tension) at the end of a normal workday (Matthews & Barnes-Farrell, 2010). To clarify, strain is fatigue at the end of the workday, whereas conflict is experienced when one role interferes with another role; the two are conceptually distinct outcomes experienced by workers. This prediction is consistent with findings from a review by Sparks et al. (1997), who determined that extended work hours led to more strain-related outcomes, including psychological and physical symptoms of illness.

Hypothesis 4a: Work hours is positively related to work-to-family conflict

Hypothesis 4b: Work hours is positively related to end-of-workday strain.

Past research has consistently demonstrated that work-to-family and family-to-work conflicts are systemically related to one another such that a positive reciprocal feedback loop exists between the two constructs (Frone et al., 1997; Mesmer-Magnus & Viswesvaran, 2005). Thus, we propose that experiences of work-to-family conflict in part drive experiences of family-to-work conflict. However, in their model of work–family conflict, Frone et al. (1997) proposed and found that the positive reciprocal relationship between work-to-family conflict and family-to-work conflict is mediated by work domain overload. In a related fashion, again drawing on conservation of resources theory, we propose that end-of-workday strain acts as a mechanism that helps to explain both the relationship between work hours and work-to-family conflict as well as the relationship between family-to-work conflict and work-to-family conflict.

Because of additional hours spent working by individuals who are heavily involved in their work roles, they may report more physical and mental strain at the end of the workday (H4b). We further predict that family-to-work conflict positively relates to end-of-workday strain by acting as an individual-level stressor that influences work experiences (Bellavia & Frone, 2005) and utilizes resources that are needed to meet work obligations. For example, Matthews, Booth, Taylor, and Martin (2011) provided preliminary evidence that individuals who are highly involved in the family domain, because of excessive family demands (i.e. providing care to children with special needs), go to work tired and have less energy to meet work demands. Because of their in ability to perform work task, this in turn results in them returning to the family domain even more tired and frustrated. Thus, we predict that individuals experiencing end-of-workday strain are more likely to transition to the family role feeling tired and are consequently more likely to experience strain-based work-to-family conflict (for a related review, see Bellavia & Frone, 2005).

Hypothesis 5: Work-to-family conflict is positively related to family-to-work conflict.

Hypothesis 6a: Family-to-work conflict is positively related to end-of-workday strain.

Hypothesis 6b: End-of-workday strain is positively related to work-to-family conflict.

Life satisfaction as a macro-level affective outcome

In Hypothesis 2, we predict that behavioural role involvement positively relates to experiences of work–family conflict because extensive behavioural involvement in one role interferes with participating in other valued roles. Consistent with conservation of resources theory, this involvement threatens resources that could be used for other valued roles. However, as we will discuss, within conservation of resources theory, it is also argued that resource gains can lead to positive outcomes. Thus, it is also possible that active engagement in a role can result in resource gains as well through, for example, an expanded sense of self. Collectively, this dualistic process has the potential to create a double-edged sword for individuals actively involved and engaged in either the work or family domains. To this end, to examine the influence of work hours on general well-being, we examined life satisfaction as an important distal outcome. Guided by previous research (i.e. Diener, 1984), we conceptualize life satisfaction as a general measure of subjective well-being and the degree to which a person favourably views his or her quality of life.

As noted, within conservation of resources theory, it is argued that individuals strive to obtain, build and protect their resources (i.e. objects, personal characteristics, conditions and energies). We propose that when an individual spends time and is active (i.e. is behaviourally involved) in a role, engaging in activities of the role will generate additional rewards (i.e. resources) for that individual. In turn, with the development of these resources, the individual will experience positive affective outcomes in the form of increased life satisfaction. This aligns with the theoretical work of Greenhaus and Powell (2006), who developed a model of work–family enrichment that illustrates how resources generated in a particular role (e.g. work) improve performance and positive affect in that role as well as another role (e.g. family). In line with predictions made by conservation of resources theory and work–family enrichment, we tested the following hypothesis.

Hypothesis 7a: Behavioural work involvement is positively related to life satisfaction.

Hypothesis 7b: Behavioural family involvement is positively related to life satisfaction.

Finally, work–family conflict has consistently been found to be negatively related to affective outcomes, such as domain satisfaction (Allen, Herst, Bruck, & Sutton, 2000). Consistent with conservation of resources theory, and related to Hypothesis 4a, pressures associated with work and family roles compete for necessary and limited resources, such as time and energy (Grandey & Cropanzano, 1999; Hobfoll, 1989). When available resources fail to meet the demands of work and family, an individual is more likely to experience strain in a given role and increased conflict between roles, which can lower life satisfaction. Thus, Hypotheses 8 and 9 draw on conservation of resources theory (Hobfoll, 1989) and provide further support for the links among inter-role conflict, work strain and life satisfaction.

Hypothesis 8a: Work-to-family conflict is negatively related to life satisfaction.

Hypothesis 8b: Family-to-work conflict is negatively related to life satisfaction.

Hypothesis 9: End-of-workday strain is negatively related to life satisfaction.

Method

Participants and procedure

Web-based ($n = 260$) and paper-and-pencil ($n = 262$) peer nomination strategies (Martins, Eddleston, & Veiga, 2002) were used to recruit participants ($n = 522$). Participants were at least 18 years of age, employed at their current organization for at least 3 months and work at least 40 h a week.

Paper-and-pencil surveys were distributed by undergraduate students from advanced psychology courses, who were trained in proper survey recruitment techniques. These student recruiters, who received nominal course extra credit for assisting with the project, were instructed to distribute surveys to individuals who they personally knew and met study criteria. Upon completion, participants were instructed to return the anonymous surveys to student recruiters in sealed envelopes.

In the web-based sample, an initial invitation was emailed to colleagues of the principal investigators. The invitation described the study and asked individuals who met the participation criteria to follow the supplied hyperlink to complete the survey. We requested email recipients to forward the email invitation to additional individuals who met the study criteria and might be willing to participate.

The nature of these recruitment procedures does not allow calculation of a survey response rate. Of the 522 participants who completed the survey, we excluded three because of missing data. We excluded another 130 respondents who did not meet the 40 h per week inclusion criterion for the study and another six who reported an organizational tenure of less than 3 months. The final sample included 383 working adults (188 paper-and-pencil; 195 web-based). Because of the non-systematic nature of the missing data (less than 2% per variable, if any) in the sample, mean imputation was used to retain the remaining participants for all analyses. A mean scale score based on the items the individual completed was calculated if the participant responded to at least 75% of the items for that measure. If a

participant responded to fewer than 75% of the items for a measure, a scale score was not computed.

In the final sample, 56% were female, 62% reported being married or living with a partner and 33% reported living with children under the age of 18. The mean age was 36.7 years [standard deviation (SD) = 11.58], and average job tenure was 7.1 years (SD = 7.94), with an average workweek of 47 h (SD = 8.1). Work hours ranged from 40 to 90 h per week. Almost a quarter of the sample (23%) reported working in professional and/or related occupations, 21% in management, business and financial operations, and 8% in construction, production and maintenance-related occupations. The sample was well educated; 70% reported holding at least a bachelor's degree.

Measures

Role salience

Modified versions of subscales from the Life Role Salience Scales were used to assess work and family role salience (Amatea, Cross, Clark, & Bobby, 1986). A modified four-item version of the Occupational Role Value Scale was used to measure work salience. A sample item for this scale is, 'Having work/a career that is interesting and exciting to me is my most important life goal.' The negatively worded item from the original five-item measure was removed from the analyses because it did not load in a consistent way in a series of initial exploratory factor analyses. To obtain a measure of family salience, wording of the five-item Marital Role Value Scale (Amatea et al., 1986) was modified to ask participants about their family rather than their marriage. A sample item is, 'My life would seem empty if I never had a family.' Participants were asked to respond to both subscales using a seven-point Likert-type scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*). Subscale items were averaged to obtain two composite single indicator measures of work and family salience, respectively.

Because these measures were modified, a principal components factor analysis (varimax rotation) using the full sample ($n = 383$) was conducted to provide basic psychometric validity evidence. This analysis resulted in a two-factor solution explaining 62.6% of the variance. The five family salience items loaded on one factor (factor loadings ranged from 0.60 to 0.86), and the four work salience items loaded on the second factor (factor loadings ranged from 0.52 to 0.80). Reliability information for these, and all other measures, is reported in Table I.

Behavioural involvement

Behavioural involvement was measured for work and family with two separate four-item scales developed specifically for this study. Although we are the first to examine behavioural involvement as a formal measured construct, our general conceptualization of the construct is consistent with past research (e.g. Barnett & Gareis, 2000; Reynolds & Aletraris, 2007; Thompson & Bunderson, 2001). A deductive item generation methodology (Schwab, 1980) was used to ensure content validity for the behavioural involvement items. The eight items were reviewed for clarity and representativeness by three subject matter experts prior to survey administration. Items are reported in the Appendix.[1] Using the full sample ($n = 383$), a principal components factor analysis (varimax rotation) resulted in a two-factor solution explaining 61.8% of the variance. Four items loaded on each conceptually distinct factor: (1) family behavioural involvement (factor loadings ranged from 0.75 to 0.85) and (2) work behavioural involvement (factor loadings ranged from 0.73 to 0.79). Participants were instructed to read each item and indicate how often the behaviour applied to them in the last 3 months (1 = *Never* to 7 = *Three or more times a week*). Subscale items were averaged to obtain two composite single indicator measures of work behavioural involvement and family behavioural involvement.

Work hours

To assess work hours, we asked participants how many hours a week they typically worked.

Work–family conflict

Six items were drawn from MacDermid et al. (2000) to assess strain-based work–family conflict (Greenhaus & Beutell, 1985). Items were selected based on recommendations provided by a distinguished work–family review panel (MacDermid et al., 2000). Three items measured work-to-family conflict ('I came home from work too tired to do some of the things I wanted to do', 'Because of my job, I didn't have the energy to do things with my family or other important people in my life' and 'My job made it difficult to maintain the kind of relationships with my family that I would like'). Three items measured family-to-work conflict ('I was too tired to be effective at work because of things I had to do at home', 'My family or personal life drained me of the energy I needed to do my job' and 'My personal responsibilities made it difficult to get along with my supervisor and coworkers the way that I would like'). Participants were given the prompt 'How often have you experienced each of the following during the past three months?' and were asked to rate each statement using a four-point frequency scale (1 = *Rarely*, 4 = *Most of the time*). Subscale items were averaged to obtain two single indicator measures of work-to-family conflict and family-to-work conflict.

End-of-workday strain

Work-related strain was measured with a three-item measure used previously by Matthews and Barnes-Farrell (2010)on the basis of items drawn from Barnes-Farrell and Piotrowski (1991). A sample item is 'How physically

[1]Additional information about scale development for the behavioral involvement measures is available from the first author.

Table I. Means, standard deviations and reliabilities for study variables

	Overall sample			Paper and pencil		Web		t-test[†]
	Mean	SD	Alpha	Mean	SD	Mean	SD	
Family role salience	5.91	1.04	0.87	5.91	1.03	5.90	1.05	0.08
Work role salience	4.67	1.06	0.69	4.78	0.98	4.56	1.13	2.06*
Behavioural family involvement	5.69	1.16	0.83	5.61	1.17	5.79	1.15	−1.52
Behavioural work involvement	4.96	1.35	0.75	4.85	1.41	5.08	1.27	−1.71
Self-reported work hours	46.98	8.11	—	46.75	7.47	47.22	8.74	−0.56
Family-to-work conflict	1.35	0.48	0.72	1.37	0.51	1.33	0.46	0.78
Work-to-family conflict	1.99	0.69	0.75	1.97	0.71	2.01	0.68	−0.53
End-of-the-workday strain	3.02	0.87	0.79	3.00	0.90	3.05	0.85	−0.50
Life satisfaction	4.84	1.28	0.89	4.78	1.33	4.90	1.23	−0.86

SD: standard deviation.
[†]Degrees of freedom = 381.
*$p < 0.05$.

tired do you feel at the end of a normal working day?' Participants answered on a five-point Likert-type scale (1 = *Not at all*, 5 = *Extremely*) and were asked to consider the past 3 months when responding. Items were averaged to obtain a single measure of end-of-workday strain.

In light of the conceptual overlap between *end-of-workday strain*, *work-to-family conflict*, *and family-to-work conflict* and *work hours* as a primary driver of many of these relationships, we investigated the distinguishability of the four constructs by conducting a principal components factor analysis (oblimin rotation). A four-factor solution explaining 72.9% of the variance was extracted. Each factor represented one of the four constructs (i.e. work-to-family conflict, family-to-work conflict, end-of-day strain and work hours) with eigenvalues ranging from 2.8 to 3.1. In all but one case, each item loaded uniquely on its respective factor (factor loadings of 0.40 or above, loadings of less than 0.3 on any other factor). One work-to-family conflict item exhibited a split loading on the end-of-day strain factor; however, its primary loading was on the work-to-family conflict factor. With these results, we assert that the measures assess distinct but related constructs.

Life satisfaction

Life satisfaction was measured with a five-item scale (Diener, Emmons, & Larsen, 1985). A sample item for this scale is 'In most ways, my life is close to ideal.' Participants were asked to respond by indicating the extent of their agreement based on a seven-point Likert-type scale (1 = *Strongly Disagree*, 7 = *Strongly Agree*) and were asked to consider the past 3 months when responding. Items were averaged to obtain a composite single indicator measure of life satisfaction.

Results

Means, standard deviations and internal consistency reliability estimates for study variables are reported in Table I. Table II reports bivariate correlations between study variables and several demographic variables relevant to the examination of the work–family interface. All measures demonstrated acceptable internal consistency levels. To verify the appropriateness of combining data from the two data collection protocols, a series of independent sample t-tests were conducted. These results are also reported in Table I. A significant mean difference was observed for one variable; mean work salience for the paper-and-pencil sample was significantly higher ($M = 4.78$) than the web sample ($M = 4.56$). Although a difference did exist for work salience, overall, no apparent systematic differences between responses to the two data collection protocols were observed; thus, data from the two samples were combined.

As reported earlier, work hours ranged from 40 to 90 h a week ($M = 47.0$, SD = 8.11) indicating considerable variability. On the basis of paired samples t-tests, family salience ($M = 5.91$) was significantly higher than work salience ($M = 4.67$) [$t(382) = 15.15$, $p < 0.01$] and behavioural family involvement ($M = 5.69$) was significantly higher than behavioural work involvement ($M = 4.96$) [$t(382) = 8.57$, $p < 0.01$].

Initial model testing

The structural equation modelling software package AMOS 17 (SPSS Inc., Chicago, IL, USA; Arbuckle, 2008) was used to test the conceptual model. Four measures of model fit were calculated: χ^2, comparative fit index (CFI), root mean square error of approximation (RMSEA) and standard root mean residual (SRMR). When evaluating model 'fit', model complexity, the theoretical underpinnings of the model, and the interpretability of estimates must be considered (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004). Also, as noted by Cortina and Bludeau (2007, September) it is important to evaluate individual hypotheses that comprise a model when assessing model fit. Accordingly, we considered several key issues in our evaluation of model fit. Firstly, because of the overall complexity

Table II. Bivariate correlations for study variables and relevant demographic variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender[†]	—												
2. Age	−0.05	—											
3. Children[‡]	−0.01	0.20**	—										
4. Organizational tenure	−0.11*	0.64**	0.04	—									
5. Education level	−0.01	0.09	0.02	0.02	—								
6. Family role salience	0.14**	0.10	0.18**	0.06	−0.08	—							
7. Work role salience	−0.05	−0.09	−0.09	0.02	0.20**	−0.16**	—						
8. Behavioural family involvement	0.14**	0.18**	0.21**	0.11*	0.08	0.41**	−0.11*	—					
9. Behavioural work involvement	−0.06	0.01	0.02	0.05	0.20**	0.07	0.19**	0.12*	—				
10. Self-reported work hours	−0.19**	0.02	0.01	0.05	0.15**	−0.07	0.10*	−0.16**	0.21**	—			
11. Family-to-work conflict	−0.08	−0.19**	−0.02	−0.13*	−0.09	−0.07	0.00	−0.25**	−0.09	0.00	—		
12. Work-to-family conflict	0.01	−0.17**	0.04	−0.16**	0.05	−0.07	0.07	−0.26**	0.02	0.31**	0.40**	—	
13. End-of-the-workday strain	0.08	−0.11*	0.05	−0.09	0.07	−0.01	0.09	−0.09	0.11*	0.21**	0.30**	0.58**	—
14. Life satisfaction	0.03	0.10*	0.07	0.09	0.13**	0.23**	0.10	0.29**	0.08	−0.06	−0.27**	−0.22**	−0.22**

[†]1 = Male, 2 = Female.
[‡]1 = No, 2 = Yes.
*$p < 0.05$,
**$p < 0.01$.

of the model and potential for systematic relationships to exist that have not been proposed, modification indices were examined to ensure the model did not systematically deviate from the data. A non-significant χ^2 indicates good model fit; however, χ^2 is sensitive to sample size. A CFI value of 0.95 or higher, an RMSEA value of 0.06 or lower and an SRMR value of 0.08 or lower are all indicative of good model fit (Hu & Bentler, 1999). Next, model fit also was assessed in congruence with theoretical propositions; if at least 2/3 of proposed hypotheses were supported, the model would be classified as having good fit. Finally, the interpretability of model parameters was assessed (i.e. no negative variance estimates).

Although the general pattern of results supported our hypotheses, overall model fit statistics indicated that the initial model significantly differed from the data [$\chi^2(18) = 57.4$, $p < 0.05$, CFI = 0.92, RMSEA = 0.08, SRMR = 0.05]. Theoretically relevant omitted paths were tested as part of our respecification process (Kline, 1998).

Model respecification

Several omitted paths were found to be statistically significant; however, only the path from family involvement to work-to-family conflict ($\beta = -0.18$, $p < 0.01$) was retained in the model as being theoretically meaningful. Drawing on boundary theory (Ashforth, Kreiner, & Fugate, 2000; Bulger, Matthews, & Hoffman, 2007), a possible mechanism for this unanticipated finding is that individuals who are behaviourally involved in family may develop and maintain boundaries that segment work and family. Segmenting work and family prevents work from interfering with their family life (e.g. they do not take work home with them at the end of the workday).

Respecified empirical model

The respecified empirical model demonstrated acceptable fit [χ^2 (17) = 39.03, $p < 0.00$, CFI = 0.96, RMSEA = 0.06, SRMR = 0.04]. Although the χ^2 statistic was significant, the CFI, RMSEA and SRMR estimates were in their respective ranges. Figure 2 displays the standardized parameter estimates for the respecified empirical model and squared multiple correlations for endogenous variables.

As predicted, both work and family salience were positively related to behavioural involvement for their respective roles ($\beta = 0.19$, $p < 0.01$ and $\beta = 0.40$, $p < 0.01$, respectively; Hypotheses 1a and 1b were supported).[2] Counter to prediction, behavioural work involvement was not related to work-to-family conflict ($\beta = -0.05$, $p > 0.05$), and behavioural family involvement was *negatively* associated with family-to-work conflict ($\beta = -0.18$,

[2]Because work and family salience operate simultaneously, it is possible that these constructs have interactive effects on behavioral involvement and work hours. Drawing on role accumulation theory (Sieber, 1974), it might also be argued that work and family behavioral involvement interact to affect our outcome variables. To examine this issue, mean centred interaction terms were computed for the two behavioral involvement variables and the two salience variables, and entered into the model. Although this revised model fit the data [χ^2 (23) = 49.80, $p < 0.01$, CFI = 0.95, RMSEA = 0.06, SRMR = 0.04], the psychological involvement interaction term did not significantly predict work hours, nor behavioral involvement for either work or family. Additionally, the behavioral involvement interaction term did not significantly predict work-to-family or family conflict, end-of-workday strain or life satisfaction. Furthermore, the inclusion of these interaction terms did not significantly impact the magnitude of the path coefficients that were used to test our original hypotheses.

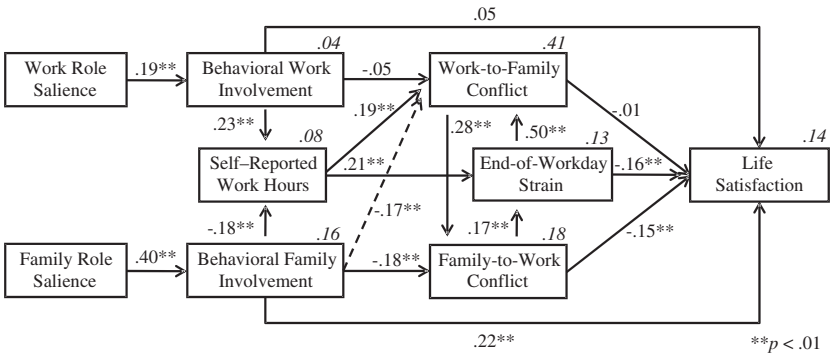

Figure 2. Standardized parameter estimates for the final empirical path model. Squared multiple correlations for endogenous variables are reported in italics. The omitted path included in the final empirical model is denoted by a hashed line

$p < 0.01$); Hypotheses 2a and 2b were not supported. We return to this issue in our post-hoc analysis reported in the next section. Consistent with Hypotheses 3a and 3b, behavioural work involvement was positively related to work hours ($\beta = 0.23$, $p < 0.01$; Hypothesis 3a supported), and behavioural family involvement was negatively related to work hours ($\beta = -0.18$, $p < 0.01$; Hypothesis 3b supported).

Both family-to-work conflict ($\beta = 0.17$, $p < 0.05$) and work hours ($\beta = 0.21$, $p < 0.01$) were positively related to end-of-workday strain (Hypotheses 6a and 4b supported, respectively), and work hours was positively related to work-to-family conflict ($\beta = 0.19$, $p < 0.01$; Hypothesis 4a supported). Furthermore, end-of-workday strain was positively related to work-to-family conflict ($\beta = 0.50$, $p < 0.01$; Hypothesis 6b supported). In turn, work-to-family conflict was positively related to family-to-work conflict ($\beta = 0.28$, $p < 0.01$; Hypothesis 5 supported).

Behavioural family involvement was positively related to life satisfaction ($\beta = 0.22$, $p < 0.01$; Hypothesis 7b supported); however, behavioural work involvement was not ($\beta = 0.05$, $p > 0.05$; Hypothesis 7a not supported). These results suggest that being behaviourally involved in work does not directly affect perceptions of life satisfaction but behavioural family involvement does. Work-to-family conflict was not related to life satisfaction ($\beta = -0.01$, $p > 0.05$; Hypothesis 8a not supported). Both family-to-work conflict ($\beta = -0.15$, $p < 0.01$; Hypothesis 8b supported) and end-of-workday strain ($\beta = -0.16$, $p < 0.01$; Hypothesis 9 supported) were negatively related to life satisfaction.

Post-hoc analysis

Our model has potential for indirect (mediated) effects.[3] To more fully examine these possible indirect effects, we report the direct, indirect and total effects for role salience and behavioural involvement on the outcomes variables of interest in Table III. Maximum likelihood bootstrapping in AMOS 17 was used to estimate standard errors and confidence intervals (90%) for all relevant indirect, direct and total effects (1000 samples were drawn).

Firstly, an indirect effect of 0.07 was observed for behavioural work involvement to work-to-family conflict; when behavioural work involvement goes up by 1 standard deviation, work-to-family conflict goes up by 0.07 standard deviations. The results suggest that the reason a direct effect of behavioural work involvement on work-to-family conflict was not observed (as proposed in Hypothesis 2a) is that this relationship is fully mediated by work hours. Of particular interest, both family salience and behavioural family involvement had consistent indirect effects on work-to-family and family-to-work conflict, as well as end-of-workday strain and life satisfaction. Alternatively, work salience did not demonstrate significant indirect effects, but behavioural work involvement did have indirect effects on work-to-family conflict and end-of-workday strain.

Discussion

The primary contribution of the present study is the development and assessment of a model of work–family conflict that explicitly incorporates work hours as a core construct of interest. We demonstrated how behavioural work involvement serves as an explanatory variable linking role salience to work hours and work–family conflict. Additionally, we examined relationships between work hours and outcomes, both strain-related and general well-being. Our results provide evidence that in addition to role salience (i.e. psychological involvement) acting as a stressor (Goode, 1960), family salience also positively relates to experiences of well-being in the form of life satisfaction, consistent with arguments made by Sieber (1974). Our results, specifically the indirect effects analyses, suggest that family salience plays a protective role against over-involvement, work strains and threats to life

[3]Consistent with standard SEM nomenclature, we use effects terminology to describe these analyses. However, the data are cross-sectional correlational data and do not provide direct support for causal inferences.

Table III. Standardized indirect, direct and total effects for psychological and behavioural involvement variables on outcomes of interest; bootstrapping used to estimate standard errors (SE) and confidence intervals (CI)

Predictors	Effect	Outcomes											
		Work-to-family conflict			Family-to-work conflict			End-of-day strain			Life satisfaction		
		Estimate	SE	90% CI	Estimate	SE	90% CI	Estimate	SE	90% CI	Estimate	SE	90% CI
Work role salience	Indirect	0.00	0.01	(−0.01/0.02)	0.00	0.00	(0.00/0.01)	0.01	0.01	(0.00/0.02)	0.01	0.01	(−0.01/0.03)
	Direct	—	—	—	—	—	—	—	—	—	—	—	—
	Total	0.00	0.01	(−0.01/0.02)	0.00	0.00	(0.00/0.01)	0.01	0.01	(0.00/0.02)	0.01	0.01	(−0.01/0.03)
Family role salience	Indirect	−0.10**	0.03	(−0.15/−0.06)	−0.10**	0.03	(−0.15/−0.06)	−0.03**	0.01	(−0.06/−0.02)	0.11**	0.03	(0.07/0.17)
	Direct	—	—	—	—	—	—	—	—	—	—	—	—
	Total	−0.10**	0.03	(−0.15/−0.06)	−0.10**	0.03	(−0.15/−0.06)	−0.03**	0.01	(−0.06/−0.02)	0.11**	0.03	(0.07/0.17)
Behavioural work involvement	Indirect	0.07**	0.02	(0.04/0.10)	0.01	0.01	(−0.01/0.03)	0.05**	0.02	(0.03/0.08)	−0.01	0.01	(−0.02/0.00)
	Direct	−0.05	0.04	(−0.11/0.02)	—	—	—	—	—	—	0.05	0.05	(−0.03/0.13)
	Total	0.02	0.04	(−0.05/0.09)	0.01	0.01	(−0.01/0.03)	0.05**	0.02	(0.03/0.08)	0.04	0.05	(−0.04/0.12)
Behavioural family involvement	Indirect	−0.08**	0.02	(−0.12/−0.05)	−0.07**	0.02	(−0.11/−0.04)	−0.08**	0.03	(−0.14/−0.05)	0.05**	0.02	(0.02/0.10)
	Direct	−0.17**	0.05	(−0.25/−0.10)	−0.18**	0.06	(−0.28/−0.09)	—	—	—	0.22**	0.05	(0.13/0.31)
	Total	−0.25**	0.05	(−0.34/−0.17)	−0.25**	0.07	(−0.36/−0.14)	−0.08**	0.03	(−0.14/−0.05)	0.28**	0.06	(0.18/0.37)

Note: Maximum likelihood bootstrapping was used with bias-corrected confidence intervals; 1000 samples drawn. All SE and CI reported are based on the bootstrapping results.
**$p < .01$.

satisfaction that high work salience would otherwise produce. Specifically, we observed the indirect effect of family salience on work-to-family conflict, family-to-work conflict and end-of-day strain. As such, individuals with higher family salience reported less (or were protected against) work–family conflict and end-of-day strain. Generally, our results support the hypotheses represented in the model, although some unanticipated findings were observed.

Involvement and the work–family interface

In accordance with identity theory, individuals who are more psychologically involved in a role and draw on that role to largely define their self-concept tend to be more actively or behaviourally involved in that role. We observed that the degree to which an individual defines himself or herself in terms of a specific role (i.e. work or family salience) predicts behavioural involvement in that role. However, the percentage of variance in behavioural involvement explained by role salience was relatively small. Although role salience was associated with behavioural involvement, other variables that were not captured in this study also appear to be instrumental in determining behavioural involvement in a specific role. For example, behavioural involvement may be driven, in part, by obligations and responsibilities. For the family role, this partially 'fixed' level of behavioural involvement is likely a function of family care responsibilities (i.e. childcare responsibilities). For work, levels of behavioural involvement will be partially constrained by the nature of the job (i.e. managerial responsibilities).

Turning to experiences of work–family conflict, we observed interesting but unexpected findings. Past research examining relationships between role involvement and work–family conflict has produced inconclusive findings (Carlson & Frone, 2003). Carlson and Frone (2003) suggested that a potential reason for inconclusive findings is neglect of the bidirectional nature of work–family conflict. We believe that the inconclusive findings may reflect the difficulty in capturing the complexity of behavioural involvement. Typically, behavioural involvement is only operationalized as time spent in a domain (e.g. Carlson & Frone, 2003). Accordingly, we included measures of work–family conflict in both directions, and we developed a more comprehensive multi-item measure of behavioural involvement in this study. Nevertheless, our results highlight the need for additional research focused on the influence of behavioural involvement on the work–family interface.

Drawing on conservation of resources theory, we hypothesized that behavioural family involvement would positively relate to family-to-work conflict given increases in experienced role strain (Fu & Shaffer, 2001; Carlson & Frone, 2003). Although we observed a significant relationship between behavioural family involvement and family-to-work conflict, it was opposite to the direction hypothesized, such that being more behaviourally involved in the family role was associated with decreased family-to-work conflict. Consistent with arguments in boundary theory, we propose that individuals who are more behaviourally involved in the family role may arrange work around their family responsibilities and manage their time so that family takes higher priority (Matthews, Barnes-Farrell, & Bulger, 2010). In doing so, individuals may not perceive their families as interfering with the work role. Similar results were reported by Greenhaus, Parasuraman, and Collins (2001) and Matthews et al. (2010), who observed a negative correlation between family involvement and family-to-work conflict.

Along these lines, behavioural family involvement was negatively related to work hours as predicted, such that individuals who were behaviourally involved in the family role were less likely to devote time to the work role (i.e. work hours). The amount of variance in work hours explained by involvement was statistically significant, although explained variance in work hours was rather small.

Turning to the work role, the influence of behavioural work involvement on work-to-family conflict demonstrates the importance of building work hours into the work–family interface. On the basis of conservation of resources theory, we predicted that behavioural work involvement would be directly related to work-to-family conflict; however, being more behaviourally involved in work was positively related to work hours (as predicted), and work hours was in turn positively related to work-to-family conflict. Our data did not support a direct relationship between behavioural work involvement and work-to-family conflict; however, post-hoc analyses suggest an indirect relationship between behavioural work involvement and work-to-family conflict that is fully mediated by work hours. These findings underscore the value of considering work hours beyond its role as statistical control (Major et al., 2002).

Involvement, work hours and affective outcomes

As demonstrated in our model, perceptions of work interfering with family were associated with reciprocal perceptions of family interfering with work. That relationship was fully mediated by end-of-workday strain. In particular, feeling that family interferes with work was positively related to feelings of end-of-workday strain, and end-of-workday strain was positively related to work-to-family conflict. Furthermore, end-of-workday strain partially mediated the effect of work hours on work-to-family conflict. This finding suggests that the more time an individual invested in the work role, the more strain was accumulated and the more work was perceived to interfere with family. Work hours may represent an energy investment in addition to a time

investment, such that individuals who feel strained after work may feel too tired to participate in family.

The final portion of our model dealt with life satisfaction as a general measure of well-being that is intimately related to the work–family interface. As expected, both family-to-work conflict and end-of-workday strain were negatively related to life satisfaction. Contrary to our expectations, work-to-family conflict was not directly related to life satisfaction. Although previous research has indicated statistically significant relationships between work-to-family conflict and life satisfaction (e.g. Allen et al. 2000), Michel Mitchelson, Kotrba, LeBreton, and Baltes (2009) have recently reported relatively weak relationship between work-to-family conflict and satisfaction outcomes based on their meta-analytic work. Because we observed an indirect effect of work-to-family conflict on life satisfaction, the relationship between these two constructs appears to be more complicated than we originally hypothesized. Thus, given the inconsistency of findings regarding a direct relationship between these constructs, life satisfaction is possibly a more distal outcome, and a complex mediated relationship involving more proximal variables, such as job and family satisfaction, could exist. Examination of causal mechanisms that relate work-to-family conflict to life satisfaction warrants attention in future research.

Applied implications

The practical value is in the overall model and how individuals who place a high value on work are more likely to invest in the work role, which can increase well-being, but runs the risk of generating conflict that takes away from that satisfaction. The message to leaders in organizations is that employees may be self-motivated to work longer hours but as a consequence might experience more work–family conflict. Previous research has indicated that work–family conflict predicts turnover intentions (Anderson, Coffey, & Byerly, 2002; Boyar, Maertz, Pearson, & Keough, 2003; Greenhaus et al. 2001), which highlights the strong practical value to leaders and organizations partnering with employees to reduce work–family conflict.

Our model provides interesting insight to issues pertaining to employees and their organizations. On the surface, it seems advantageous for organizations to prefer employees who place a high importance on work, demonstrate active engagement in their jobs and voluntarily work longer hours. For both individuals and organizations, this type of work investment yields short-term gains but perhaps at the cost of long-term success. Our results suggest that the investment in work is not without a price. Employees who work more hours a week may experience increased work-to-family conflict and increased end-of-workday strain. For example, results from a recent survey suggest that the number of professionals with extreme work hours (defined in the study as 60 or more hours per week) is rising (Hewlett & Luce, 2006). In this survey, 77% of women and 66% of men with extreme jobs felt unable to maintain their household. With 66% of the sample not getting sufficient sleep and half not getting enough exercise, the sustainability of this lifestyle falls into question. If employees experience conflict and strain in their personal lives, we are naïve to believe that their quality of work will be unaffected. In consideration of this no-win situation, individuals may benefit from insight into the costs they must be prepared to deal with if they choose to work longer hours.

Similarly, leaders in organizations are encouraged to consider how they can help employees strategically invest in the work role they value without the negative consequences of longer work hours (i.e. by working smarter, not longer). We agree with Hewlett and Luce (2006) that a climate that promotes extreme investments in the work role likely reinforces these lifestyles. In organizations, senior leaders play a key role in determining which behaviours are recognized, rewarded and thus reinforced as necessary for success. With this in mind, interventions designed to bring sustainability to employees' energy would be advised to start with senior leaders. Training resources and a clear business case are two ways organizations can prepare their leaders to 'walk the talk' of healthy work hours and guide employees to recognize the longer-term strains of work hours in their employees.

Limitations

Our findings must be interpreted in light of several methodological limitations. Firstly, data were gathered from convenience samples, which may limit generalizability of study findings. However, our results are not constrained by the particular context and culture of a single organization (Major et al., 2002). A strength of our sample, especially compared with most studies on this topic, is the inclusion of employees from many organizations.

Another methodological concern is that our measures were self-report from a single point in time, which raises the possibility that common method variance could have spuriously produced the relationships observed among variables. However, common method variance is only considered a serious issue if a systematic and pervasive inflation of observed relationships appears (James, Gent, Hater, & Corey, 1979). Without downplaying the possibility that common method bias is at play, the range of correlations ($r = 0.00$ to 0.58), absence of multicollinearity (Kline, 1998) and absence of non-intuitive relationships suggest that common method variance is not a significant concern in our study.

As an additional empirical check to assess issues of common method variance, a principal components factor analysis (varimax rotation) was conducted on the eight multi-item measures. This analysis resulted in a seven-factor solution explaining 64.3% of the variance. Eigenvalues ranged from 2.1 to 3.7. In all but one

case, each factor uniquely represented one of the eight multi-item measures. The only exception was that items from the end-of-workday strain and the work-to-family conflict measures loaded on one factor (note that although these measures are related, multicollinearity does not appear to be an issue). As noted by Podsakoff, MacKenzie, Lee, & Podsakoff (2003), seven distinct factors, rather than a single factor, accounting for the majority of variance suggest that common method variance is not a significant issue in this data despite the limitations of this method.

Finally, our measure of behavioural involvement requires additional validation work. Although the measure demonstrates initial construct validity in its relationship with theoretically relevant antecedents (i.e. role salience) and outcomes (i.e. work–family conflict), additional work is needed to clarify this measure's utility. Researchers may consider subjecting the measure to a more thorough external content evaluation by subject matter experts to ensure that the items tap a relevant and representative sample of behavioural activities for the work and family roles, respectively. Furthermore, our scale development process focused primarily on developing items that tap into *frequency* of engaging in behaviours in a role. As such, we only indirectly assess *effort* of involvement. The degree to which an individual exerts effort may also be an important factor in the assessment of behavioural involvement. Thus, our items summarize resource allocation over time rather than specifically assessing intensity of effort at the item level. Researchers may wish to examine the interaction between effort and frequency and in the predictive effects of behavioural role involvement.

Future research and conclusion

The results of our study highlight the value of considering temporal aspects of the work role and its implications for workers and their families. As we have noted, several measurement and design considerations need to be addressed to strengthen our ability to understand these phenomena and draw conclusions about them. In particular, additional measurement work designed to elaborate and operationalize the behavioural involvement construct would be useful. Likewise, the use of longitudinal research designs that capture the dynamics of how time spent in one role affects experiences in other life roles is needed. However, looking beyond these issues, our model and findings suggest several other questions that we recommend for future research on this topic. We see at least three research directions that particularly merit additional attention.

Firstly, although the present study focuses on linear aspects of relationships between work hours and employee reactions, we expect that work hours may have non-linear effects on certain outcomes. For example, two qualitative studies (Buell & Breslow, 1960; Barton & Folkard, 1993) reported a non-linear relationship between hours worked and health. In both studies, individuals who reported working more than 48 h a week experienced greater health problems compared with individuals who worked fewer than 48 h a week. Besides incorporating time into work–family interface models, non-linear effects of time are another recommended consideration in future research.

Secondly, we recommend that additional attention be paid to the interplay between 'quantity of work' and 'quality of work'. For example, much lip service is given to the problems that 'overwork' creates for individuals and their families; data from our study corroborate such concerns. At the same time, considerable attention is being paid today to the value of creating and maintaining a highly engaged workforce, which raises what we believe is an important set of questions about the relationships among role salience, behavioural involvement, work time and personal/family outcomes. We need a clearer understanding of where, when and why the decision to devote additional time to the work role is likely to result in negative consequences and a clearer understanding of how workers and organizations can mitigate those consequences. For example, in our study, we observed that the relationship between work hours and work–family conflict is partially mediated by end-of-workday strain. Does working long hours at engaging work result in less end-of-workday strain, thus relieving some of the strain-based work-to-family conflict that workers with long work weeks often experience? In a related vein, researchers are encouraged to recognize that the motives and consequences for long work hours can differ by labour sectors. For example, we recommend examining how and why long work hours may differ in antecedents and consequences between blue-collar and white-collar employees.

Thirdly, we feel that using identity theory in concert with conservation of resources theory provides a useful framework for thinking about how individual characteristics of workers influence their approach to spending and conserving personal resources. Future research that directly tackles questions about how behavioural involvement in meaningful (salient) roles can provide protective functions and the strategies that workers use to conserve and generate resources for valued roles would be of real value. In particular, it would help to shed light on the recurring finding (in our work and that of other researchers) that individuals with high behavioural family involvement reported less family-to-work conflict.

In conclusion, temporal aspects of the work–family interface are ripe for further study. Understanding how individuals conceptualize time in the work and family roles is needed to expand researchers' and practitioners' knowledge of how individuals can optimally manage their work and family responsibilities. We encourage other researchers to consider how time-related aspects of the work and family roles interplay in the work–family interface.

REFERENCES

Allen, T. D., Herst, D. E., Bruck, C. S., & Sutton, M. (2000). Consequences associated with work-to-family conflict: A review and agenda for future research. *Journal of Occupational Health Psychology*, *5*, 278–308.

Amatea, E. S., Cross, E. G., Clark, J. E., & Bobby, C. L. (1986). Assessing the work and family role expectations of career-oriented men and women: The life role salience scales. *Journal of Marriage and Family*, *48*, 831–838.

Anderson, S. E., Coffey, B. S., & Byerly, R. T. (2002). Formal organizational initiatives and informal workplace practices: Links to work–family conflict and job-related outcomes. *Journal of Management*, *28*, 787–810.

Arbuckle, J. L. (2008). *AMOS (version 17.0) [Computer software]*. Chicago: SPSS.

Aryee, S. (1992). Antecedents and outcomes of work–family conflict among married professional women: Evidence from Singapore. *Human Relations*, *45*, 813–837.

Ashforth, B. E., Kreiner, G. E., & Fugate, M. (2000). All in a day's work: Boundaries and micro role transitions. *Academy of Management Review*, *25*, 472–491.

Barnes-Farrell, J. L., & Piotrowski, M. J. (1991). Discrepancies between chronological age and personal age as a reflection of unrelieved worker stress. *Work and Stress*, *5*, 177–187.

Barnett, R. C., & Gareis, K. C. (2000). Reduced-hours employment: The relationship between difficulty of trade-offs and quality of life. *Work and Occupations*, *27*, 168–187.

Barton, J., & Folkard, S. (1993). Advancing versus delaying shift systems. *Ergonomics*, *36*, 59–64.

Bellavia, G. M. & Frone, M. R. (2005). Work-family conflict. In J. Barling, K. Kelloway & M. Frone (Eds.), *Handbook of work stress* (pp. 113–147). Thousand Oaks, CA: Sage.

Boyar, S. L., Maertz, C. P., Pearson, A. W., & Keough, S. (2003). Work–Family conflict: A model of linkages between work and family domain variables and turnover intentions. *Journal of Managerial Issues*, *15*(2), 175–191.

Buell, P., & Breslow, L. (1960). Mortality from coronary heart disease in California men who work long hours. *Journal of Chronic Diseases*, *11*, 615–626.

Bulger, C. A., Matthews, R. A., & Hoffman, M. E. (2007). Work and personal life boundary management: Boundary strength, work/personal life balance, and the segmentation-integration continuum. *Journal of Occupational Health Psychology*, *12*, 365–375.

Burke, R. J. (2006). Work hours and work addiction. In R. J. Burke (Ed.), *Research companion to working time and work addiction* (pp. 3–35). Northampton, MA: Edward Elgar Publishing, Inc.

Burke, P. J., & Reitzes, D. C. (1981). The link between identity and role performance. *Social Psychology Quarterly*, *44*, 83–92.

Byron, D. (2005). A meta-analytic review of work–family conflict and its antecedents. *Journal of Vocational Behavior*, *67*, 169–198.

Carlson, D. S., & Frone, M. R. (2003). Relation of behavioral and psychological involvement to a new four-factor conceptualization of work–family interference. *Journal of Business and Psychology*, *17*(4), 515–535.

Carlson, D. S., & Perrewe, P. L. (1999). The role of social support in the stressor-strain relationship: An examination of work–family conflict. *Journal of Management*, *25*, 513–540.

Cinamon, R. G., & Rich, Y. (2002). Profiles of attribution of importance to life role and their implications for the work–family conflict. *Journal of Counseling Psychology*, *49*, 212–220.

Cortina, J. M., & Bludeau, T. M. (2007, September). Goodness of fit in structural equation models. *Center for the Advancement of Research Methods and Analysis (CARMA)* webcast.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*, 542–575.

Diener, E., Emmons, R. A., & Larsen, R. J. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*, 71–75.

Eby, L. T., Casper, W. J., Lockwood, A., Bordeaux, C., & Brinley, A. (2005). Work and family research in IOOB: Content analysis and review of the literature (1980–2002). *Journal of Vocational Behavior*, *66*(1), 124–197.

Ford, M. T., Heinen, B. A., & Langkamer, K. L. (2007). Work and family satisfaction and conflict: A meta-analysis of cross-domain relations. *Journal of Applied Psychology*, *92*, 57–80.

Frone, M. R. (2003). Work–family balance. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 143–162). Washington, DC: American Psychological Association.

Frone, M. R., Yardley, J. K., & Markel, K. S. (1997). Developing and testing an integrative model of the work–family interface. *Journal of Vocational Behaviors*, *50*, 145–167.

Fu, C. K., & Shaffer, M. A. (2001). The tug of work and family: Direct and indirect domain specific determinants of work–family conflict. *Personnel Review*, *30*, 502–522.

Goode, W. J. (1960). A theory of role strain. *American Sociological Review*, *25*, 483–496.

Grandey, A. A., & Cropanzano, R. (1999). The conservation of resources model applied to work–family conflict and strain. *Journal of Vocational Behavior*, *54*, 350–370.

Grandey, A. A., Cordeiro, B. L., & Michael, J. H. (2007). Work–family supportiveness organizational perceptions: Important for the well-being of male blue-collar hourly workers? *Journal of Vocational Behavior*, *71*, 460–478.

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, *10*, 76–88.

Greenhaus, J. H., & Powell, G. (2006). When work and family are allies: A theory of work–family enrichment. *Academy of Management Review*, *31*, 72–92.

Greenhaus, J. H., Bedeian, A. G., & Mossholder, K. W. (1987). Work experiences, job performance, and feelings of personal and family well-being. *Journal of Vocational Behavior*, *31*, 200–215.

Greenhaus, J. H., Parasuraman, S., & Collins, K. M. (2001). Career involvement and family involvement as moderators of relationships between work–family conflict and withdrawal from a profession. *Journal of Occupational Health Psychology*, *6*, 91–100.

Gutek, B. A., Searle, S., & Klepa, L. (1991). Rational versus gender role explanations for work–family conflict. *Journal of Applied Psychology*, *76*(4), 560–568.

Hewlett, S. A., & Luce, C. B. (2006). *Extreme jobs: The dangerous allure of the 70-hour workweek*. Harvard Business Review, December, 49–59.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*, 513–524.

Höge, T. (2009). When work strain transcends psychological boundaries: An inquiry into the relationship between time pressure, irritation, work–family conflict and psychosomatic complaints. *Stress and Health*, *25*, 41–51.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55.

James, L., Gent, M., Hater, J., & Corey, K. (1979). Correlates of psychology influence: An illustration of the psychological climate approach to work environment. *Personnel Psychology*, *32*, 563–588.

Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: Guilford Press.

Kossek, E. E., Baltes, B. B., & Matthews, R. A. (2011). How work–family research can finally have an impact in organizations. Industrial and Organizational Psychology: Perspectives on Science and Practice.

MacDermid, S. M., Barnett, R., Crosby, R., Greenhaus, J. Koblenz, M., Marks, S., ... Sabbatini-Bunch, L. (2000). *The measurement of work/life tension: Recommendations of a virtual think tank*. Boston, MA: Sloan Work and Family Research Network.

Major, V. S., Klein, K. J., & Ehrhart, M. G. (2002). Work time, work interference with family, and psychological distress. *Journal of Applied Psychology*, *87*(3), 427–436.

Marsh, H. W., Hau, K.-T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) finings. *Structural Equation Modeling*, *11*, 320–341.

Martins, L. L., Eddleston, K. A., & Veiga, J. F. (2002). Moderators of the relationship between work–family conflict and career satisfaction. *Academy of Management Journal*, *45*, 399–409.

Matthews, R. A., & Barnes-Farrell, J. L. (2010). Development and initial evaluation of an enhanced measure of boundary flexibility for the work and family domains. *Journal of Occupational Health Psychology*, *15*, 330–346.

Matthews, R. A., Barnes-Farrell, J. L., & Bulger, C. A. (2010). Advancing measurement of work–family boundary characteristics. *Journal of Vocational Behavior*, *77*, 447–460.

Matthews, R. A., Booth, S. M., Taylor, C. F., & Martin, T. (2011). A qualitative examination of the work–family interface: Parents of children with autism spectrum disorder. *Journal of Vocational Behavior. Journal of Vocational Behavior.* doi:10.1016/j.jvb.2011.04.010

Mesmer-Magnus, J. R., & Viswesvaran, C. (2005). Convergence between measures of work-to-family and family-to-work conflict: A meta-analytic examination. *Journal of Vocational Behavior*, *67*, 215–232.

Michel, J. S., Mitchelson, J. K., Kotrba, L. M., LeBreton, J. M., & Baltes, B. B. (2009). A comparative test of work–family conflict models and critical examination of work–family linkages. *Journal of Vocational Behavior*, *74*(2), 199–218.

Nielson, T. R., Carlson, D. S., & Lankau, M. J. (2001). The supportive mentor as a means of reducing work–family conflict. *Journal of Vocational Behavior*, *59*, 364–381.

O'Driscoll, M. P., Ilgen, D. R., & Hildreth, K. (1992). Time devoted to job and off-job activities, interrole conflict, and affective experiences. *Journal of Applied Psychology*, *77*, 272–279.

Parasuraman, S., Purohit, Y. S., Godshalk, V. M., & Beutell, N. J. (1996). Work and family variables, entrepreneurial success and psychological well-being, *Journal of Vocational Behavior*, *48*, 275–300.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879–903.

Reynolds, J., & Aletraris, L. (2007). Work–family conflict, children, and hour mismatches in Australia. *Journal of Family Issues*, *28*, 749–772

Rothbard, N. P., & Edwards, J. R. (2003). Investment in work and family roles: A test of identity and utilitarian motives. *Personnel Psychology*, *56*, 699–729.

Schwab, D. P. (1980). Construct validity in organization behavior. In B. M. Staw, & L. L. Cummings (Eds.), *Research in organizational behavior*, Vol. *2*. (pp. 3–43). Greenwich: JAI Press.

Shamir, B. (1983). Some antecedents of work–nonwork conflict. *Journal of Vocational Behavior*, *23*, 98–111.

Sieber, S. D. (1974). Toward a theory of role accumulation. *American Sociological Review*, *39*, 567–578.

Sparks, K., Cooper, C., Fried, Y., & Shirom, A. (1997). The effects of hours of work on health: A meta-analytic review. *Journal of Occupational and Organizational Psychology*, *70*, 391–408.

Stryker, S., & Burke, P. J. (2000). The past, present, and future of an identity theory. *Social Psychology Quarterly*, *63*(4), 284–297.

Thompson, J. A., & Bunderson, J. S. (2001). Work-nonwork conflict and the phenomenology of time: Beyond the balance metaphor. *Work and Occupations*, *28*, 17–39.

Valcour, M. (2007). Work-based resources as moderators of the relationship between work hours and satisfaction with work–family balance. *Journal of Applied Psychology*, *92*, 1512–1523.

Whitley, W., & England, G. W. (1977). Managerial values as a reflection of culture and the process of industrialization. *Academy of Management Journal*, *20*, 439–453.

Appendix

Behavioural work involvement

(1) How often do you make constructive suggestions that could improve the operation of your company?
(2) How often do you actively attend company meetings?
(3) How often do you help a new colleague to adjust to the work environment?
(4) How often do you help colleagues to solve work-related problems?

Behavioural family involvement

(1) How often do you have a deep and meaningful conversation with a family member?
(2) How often do you go shopping with a family member?
(3) How often do you know about the day-to-day activities of your family members?
(4) How often do you discuss a problem a family member is having with them?