"Negative interference" between Australian construction professionals' work and family roles

Evidence of an asymmetrical relationship

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Abstract

Purpose – The paper sets out to describe the testing of a model of work and family life among a sample of professional and managerial employees in the Australian construction industry. The model positioned work-family conflict as a variable linking experiences in one domain (i.e. work or family) with outcomes in the other domain.

Design/methodology/approach – A survey exploring experiences of work and family life was conducted among employees of one large private and one large public sector construction organization in Queensland, Australia. Regression analyses were performed to test the validity of the work-family interface model.

Findings – The model was partially supported in that time and strain-based demands in the work domain were linked to family functioning via work interference with family. However, time and strain-based demands in the family domain were not linked to work role outcomes via family interference with work.

Research limitations/implications – The survey was cross-sectional so the causal direction of relationships could not be ascertained. Longitudinal research is needed to establish the causal direction of the work-family relationships supported by the research. Further research is also required to examine the effectiveness of strategies designed to reduce work interference with family life in the construction sector.

Practical implications – The asymmetry in the relationship between construction employees' work and family lives indicates that the family life of professional and managerial construction employees in Australia is more susceptible to interference from work than work life is susceptible to interference from family life.

Originality/value – Provides evidence that, when construction professionals and managers face obligations in one role that interfere with the enactment of a second role, performance in the second role suffers.

Keywords Role conflict, Hours of work, Stress, Family life, Construction industry, Australia

Paper type Research paper

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Introduction

Work-family conflict

Work-family conflict has been defined as "a form of interrole conflict in which role pressures from the work and family domains are mutually incompatible in some respect" (Greenhaus and Beutell, 1985, p. 77). Work-family conflict has been consistently linked to negative outcomes for individuals, families and employing organisations. For example, work interference with family has been associated with job dissatisfaction, life dissatisfaction, intention to turnover, general well-being, psychological strain, psychiatric disorders and substance abuse and problem drinking (Allen *et al.*, 2000; Netemeyer *et al.*, 1996; Boyar *et al.*, 2003; O'Driscoll *et al.*, 2003; Grant-Vallone and Donaldson, 2001; Hammer *et al.*, 2004; Frone, 2000; Grzywacz and Marks, 2000). Work-family conflict is understood to be bi-directional. That is, family interference with work (FIW) is reported to be related to, but distinct from work interference with family (WIF). FIW has also been linked to undesirable outcomes (Kelloway *et al.*, 1999).

Work-family conflict in construction

Previous research confirms that professional and managerial employees in the Australian construction industry suffer from high levels of work-family conflict. Work-family conflict is particularly acute among site-based professionals and managers (Lingard and Francis, 2004). Work-family conflict is reported to mediate the relationship between job demands and burnout (Lingard and Francis, in press). Also, the relationship between work-family conflict and emotional exhaustion is moderated by managerial support (Francis, 2005). Work-family conflict is also significantly, negatively correlated with marital satisfaction (Lingard and Francis, 2002) and life satisfaction (Francis, 2004). The research in the construction industry context has utilized a single measure of work-family conflict and typically did not distinguish between the two directions of the concept, i.e. between WIF and FIW. The present research builds on this work by exploring the bi-directional nature of work-family conflict in the Australian construction industry.

An integrative model

In a seminal piece of research, Frone *et al.* (1997) tested a model of the work-family interface in which work-family conflict was theoretically positioned as a key variable, linking experiences in the work domain with experiences in the family domain. In particular, Frone *et al.* (1997) hypothesized that work distress and work overload give rise to WIF which, in turn, leads to parental overload and family distress. Conversely, they suggested demands in the family environment give rise to FIW, leading to overload and distress in the work domain. Frone *et al.*'s (1997) empirical results supported their model. They found that predictors of work-family conflict were, indeed, domain-specific. That is, variables in the work environment (work overload and work distress) predicted WIF, while variables in the family domain (family distress and parental overload) predicted FIW. Frone *et al.* (1997) also found that the two directions of work-family conflict exhibited domain-specific outcomes. Thus, FIW was negatively related to work performance, while WIF was negatively related to family performance. These results provided evidence that when employees' obligations in one role interfere with the enactment of a second role, performance in the second role suffers. In Frone

et al.'s findings, work-family conflict was supported as a variable linking work and family life (Frone *et al.*, 1997). Thus, work was found to affect family life (and vice versa) through employees' subjective experience of work-family conflict.

Objectives

The aim of this paper is to test a research model of the work-family interface, based on that of Frone *et al.* (1997), among a sample of Australian construction professionals and managers. Specifically, the objectives of the paper are:

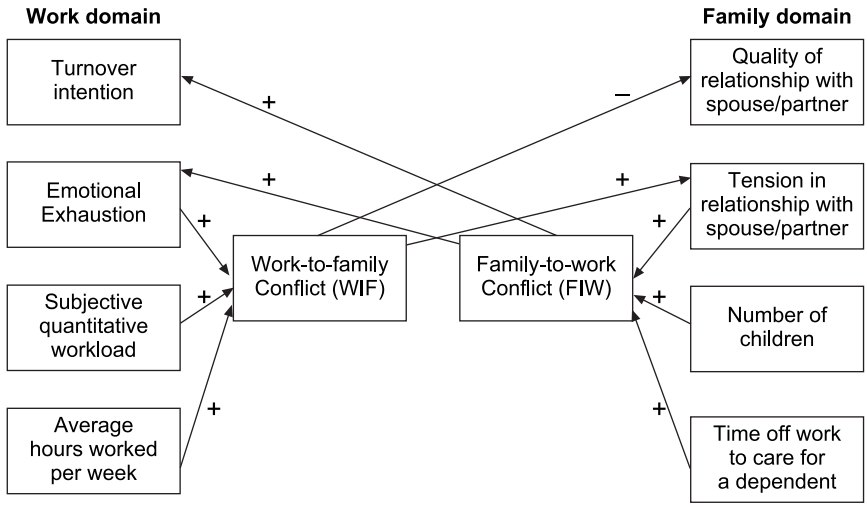
- To examine whether the predictors of both directions of work-family conflict (i.e. WIF and FIW) are domain-specific.
- To examine whether the outcomes of both directions of work-family conflict are domain specific.
- To examine whether work-family conflict is a linking variable in employees' cross-role experiences in the work and family domains.

Our integrative model of the work-family interface is depicted in Figure 1. This model will be briefly explained. The research methods are then described before the research results are presented and discussed.

Predictors of work-family conflict

Types of predictor

Greenhaus and Beutell (1985) classified direct predictors of work-family conflict into two types: time-based and strain-based predictors. Time-based predictors represent role-related time commitments, i.e. the amount of one's time that is spent involved in work or family-related activities. Parasuraman *et al.* (1996) suggest that time commitments are an important direct predictor of work-family conflict because time is a limited resource and time spent in one role-related activity inevitably reduces the



Source: Adapted from Frone *et al.* (1997)

Figure 1.
Conceptual model of the work-family interface

time that can be devoted to another role. Thus, time-based predictors were included in our model as direct predictors of both FIW and WIF.

Time-based predictors

Work hours have been consistently linked to difficulties in balancing work and personal life (Moen and Yu, 2000; Guerts *et al.*, 1999; Batt and Valcour, 2003; Tausig and Fenwick, 2001). In the construction industry, employees are expected to work long hours. Research suggests that long work hours are negatively related to family participation and positively related to divorce rate (Aldous *et al.*, 1979). In a study of civil engineers in New South Wales and Victoria, Lingard and Sublet (2002) report work hours to be a significant predictor of quality in the marital relationship. Thus, we hypothesized that the average number of hours worked each week would significantly predict WIF and the relationship would be in the positive direction.

Similarly, time spent engaged in family activities has also been linked to work-family conflict. Boyar et al. (2003, p. 179) define family responsibility broadly as "the obligation to care for others who are either formally or informally sanctioned family members". Boise and Neal (1996) suggest that family responsibilities, irrespective of whether these responsibilities involve caring for a child or other family dependants, increase the time requirements placed on the family. These time commitments, in turn, have the potential to interfere with an individual's work role. Thus, we hypothesized that the time that individuals are required to take off work to undertake family responsibilities would significantly predict FIW and the relationship would be in the positive direction.

Strain-based predictors

The second type of predictor of work-family conflict (strain-based issues) relates to role-related distress or dissatisfaction (Frone *et al.*, 1997). Greenhaus and Beutell (1985) suggest that various role characteristics can generate strain or distress that undermines an individual's ability or willingness to fulfill the responsibilities of another role.

We hypothesized that two strain-based issues in the work domain would predict WIF: subjective quantitative workload and emotional exhaustion. Subjective quantitative workload refers to an individuals' subjective perception that they have too much work to do in the time available. Major *et al.* (2002) suggest that overload occurs when the perceived magnitude of work overwhelms an individual's perceived ability to cope. Further, a person may experience work overload, even if the work is completed on time. In this regard, a subjective evaluation of overload is more concerned with appraising one's perceived ability to meet demands, and therefore captures a state of mind rather than being an objective measure of actual workload. Subjective quantitative workload has been a robust predictor of WIF in previous research (Guerts and Demerouti, 2003, Wallace, 1997) and therefore we hypothesized that it would predict WIF and that the relationship would be in the positive direction.

Emotional exhaustion is conceptually understood to be the core dimension of employee burnout (Maslach *et al.*, 1996). Emotional exhaustion reflects feelings of depleted resources and exhaustion specifically related to one's work. As such, it may be regarded as a type of work distress. Previous research also suggests that emotional exhaustion can have a negative impact on employees' family lives. For example,

emotional exhaustion is reported to predict social undermining behaviour in married couples and is reported to "spread," causing similar exhaustion in the family members of the burnt out individual (Westman and Etzion, 1995; Westman *et al.*, 2001). Thus we hypothesized that emotional exhaustion would significantly predict WIF and that this relationship would be in the positive direction.

We also hypothesized two strain-based issues in the family domain would predict FIW: the presence of children and tension in one's relationship with spouse/partner. The presence of children in a family has been linked to greater work-family conflict. In a study of technical, professional and managerial employees, both men and women report that having children in the household lowers their sense of control over managing work and family (Batt and Valcour, 2003). Tausig and Fenwick (2001) report that married couples without children enjoy more satisfactory work-life balance and that the presence of children – whether in single or two-parent households, dual earner or "traditional" single earner households – is significantly related to perceptions of work-family conflict. Thus, we hypothesized that the number of children present in a household would predict FIW and the relationship would be in the positive direction.

The second family strain-based issue we hypothesized would predict FIW was tension in employees' relationships with their spouses, partners or significant others. For the purposes of brevity, we refer to all of these relationships as marital relations, although our data includes people in long term or de facto relationships. It is argued that non-work problems can make it difficult for people to cope with the pressures of work and their performance at work might suffer (HSE, 2001). Although there is limited empirical evidence to support the contention that family issues negatively impact on work performance. Despite this relative lack of evidence, in-keeping with the model of Frone *et al.* (1997), we hypothesized that tension in the marital relationship would significantly predict FIW and that this relationship would be in the positive direction.

Outcomes of work-family conflict

Outcomes of WIF

Several studies have linked aspects of the work environment to quality in employees' marital relationships (Mauno and Kinnunen, 1999; Crouter *et al.*, 2001). There is also evidence that the relationship between work variables and family relationships is mediated by perceptions that work negatively interferes with family life, i.e. WIF. For example, Crouter *et al.* (2001) report that, although men who work longer hours (more than 60 hours per week) spend less time with their wives, this does not reduce both partners' subjective assessments of the quality of their marital relationship. However, when men feel overloaded and unable to participate positively in family life, they report lower levels of marital satisfaction. Specifically, we hypothesized that WIF would act as a linking variable in the relationship between work experiences and marital quality. We hypothesized that WIF would predict an individual's perception of the quality of and the tension in their marital relationship. We expected the association between WIF and relationship quality to be negative and the association between WIF and relationship tension to be positive.

Outcomes of FIW

Greenhaus *et al.* (2001) suggest that, when employees experience work-family conflict, they will try to eliminate this conflict by withdrawing from work. Turnover intention has been defined as a "general tendency to remain with or leave the organisation" (Whitener and Walz, as cited in Jaros, 1997). In their study of technical, professional and managerial employees, Batt and Valcour (2003) reported work-family conflict to be significantly and positively related to turnover intentions. Consistent with the cross-role model of Frone *et al.* (1997), we hypothesised that FIW would predict turnover intention and that the relationship would be in the positive direction. In their original integrated model, Frone *et al.* (1997) also hypothesized that work distress would be an outcome of FIW. We conceptualized work distress as the emotional exhaustion dimension of burnout (see above). Emotional exhaustion is a state in which people feel psychologically depleted and unable to engage psychologically in their work. Specifically, we hypothesized that FIW would significantly predict emotional exhaustion and that this relationship would be in the positive direction.

Research methods

Data collection and sampling

The data were collected from employees of one public and one private sector organisation in Queensland, Australia. The public sector organisation is involved in the construction of large infrastructure projects and the private sector organization is involved in both civil engineering and building projects throughout the state of Queensland. In particular, project based managerial staff were selected to participate in the study.

The majority of the data was collected via worldwide web based surveys. A web site was established for the study, through which the survey was available for employees. Internet surveys have been found to yield high response rates in previous work-family balance studies (see, for example, Hill *et al.* (2001)). Paper-based surveys were also made available on the web site (downloadable pdf version) to allow for respondents who did not wish to complete the survey online. A letter from senior management explaining the purpose of the survey and assuring confidentiality and anonymity of responses was sent to each potential respondent.

Questionnaire structure

The questionnaire consisted of eight main sections, as follows:

(1) demographics;
(2) work load and responsibility;
(3) work environment;
(4) feelings about work;
(5) quality of spouse/partner relationship;
(6) family dependents;
(7) absence from work; and
(8) work-life balance.

Measurement

With the exception of the number of dependent children and the average number of hours worked each week, all of the variables were measured using pre-existing psychometric scales. The measurement methods are described below.

Work hours. Participants were asked to indicate the average number of hours they spend directly undertaking "work duties" each week.

Subjective quantitative work load. This was measured using nine items scored on a five point Likert scale (Caplan, as cited in Cook *et al.*, 1981). Participants were asked to indicate the extent to which statements reflected the quantitative demands of their work. Items were rated on a five-point scale ranging from 1 (very little) to 5 (very great). Example items are "the number of projects and/or assignments you have", and "the extent to which you feel you never have any time".

Turnover intention. This was measured using two items "I often think about quitting" and "I will probably look for a new job in the next year", which were drawn from a three-item subscale of the Michigan Organizational Assessment Questionnaire (Cammann Fichman, Jenkins and Klesh; Sheashore, Lawler, Mirvis and Cammann, as cited in Cook *et al.*, 1981). These items were scored on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Burnout. Burnout was measured using the 16-item Maslach Burnout Inventory (MBI) which comprises three sub-scales assessing emotional exhaustion (I feel emotionally drained from my work), cynicism (I have become less interested in my work since I started this job) and professional efficacy (At work, I feel confident that I am effective at getting things done). Following Maslach *et al.* (1996) only frequency ratings were used. Items were rated on a seven point Likert scale ranging from 0 (never) to 6 (Every day).

Relationship quality. This was measured using a scale constructed by Orden and Bradburn (1968). The scale consists of a list of events that occur in a marriage that could be considered pleasurable or likely to cause disagreements. Respondents were provided with a list of activities that were considered as pleasurable and asked to rate how frequently they had undertaken them. Sample items are "Visited friends together." and "Had a good laugh together or shared a joke." The relationship tension scale contained things about which people sometimes disagreed and participants were asked to indicate how frequently they had had a difference of opinion over these things. A sample item from this scale is "Household expenses". Both the pleasurable and tension-provoking items were scored on a five point Likert scale ranging from 0 (Not at all) to 4 (Very frequently).

Work-family conflict was measured using a scale developed by Netemeyer *et al.* (1996). Participants were asked to read ten statements about their experiences at work and outside of work and to indicate the extent to which they agreed or disagreed with them. The items were scored on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Example items are "The demands of my work interfere with my home and family life" and "My co-workers and peers at work dislike how often I am preoccupied with my family life".

Data analysis procedures

Modelling procedures together with multiple regression analyses were undertaken to determine the extent to which the hypothesized antecedent variables predicted

work-family conflict and the extent to which work-family conflict predicted the hypothesized outcome variables. Significant regression co-efficients in the expected direction would support the theoretical arguments underpinning the model. Whereas a failure of the model to fit the data would result in model falsification. Although no model can be definitively confirmed, the repeated failure to disprove a model adds strength to researchers' belief in a theory (Cohen *et al.*, 2003).

In order to test our model (or theory), we used a statistical technique known as path analysis. Path analysis uses multiple regression procedures to calculate the relationships between the model variables. The magnitude of the pathways is then examined to determine how variables in the model impact on each other and the outcome variables (in the above case, outcome variables are work role performance, work distress/dissatisfaction, family role performance and family distress/dissatisfaction.

Results

Sample demographics

A total 202 complete and useable questionnaires were returned. Table I shows the demographic characteristics of the sample. Of the total responses, 63 (31.2 per cent) were from the private sector and 139 (68.8 per cent) were from the public sector. The mean age of the sample was 39.8 years (SD = 10.7) ranging from 22 to 67 years. The average age of public sector employees was 40.2 years (SD = 10.8) and private sector employees was 39.0 years (SD = 10.5). Of the 202 respondents, 178 (88.1 per cent) were male and 24 (11.9 per cent) were female.

Regression results

Figure 2 shows the regression coefficients for each of the specified pathways in the hypothetical model.

As Figure 2 shows, all hypothesized work-domain predictors of WIF were highly significant ($p =< 0.001$) and in the expected direction. Thus, emotional exhaustion, subjective quantitative overload and average hours worked per week all significantly predicted WIF in our sample. In contrast, only one of the hypothesized family-domain predictors significantly predicted FIW. This was tension in the marital relationship ($p = 0.001$). Neither the number of dependent children in the household nor the amount of time taken off work to care for a dependent were significant predictors of respondents' perception that their family interfered with their work in a negative way.

WIF was also a significant predictor of both of the hypothesized family-domain outcomes. The regression coefficients for the pathways between WIF and quality of the marital relationship and tension in the marital relationship were highly significant ($p =< 0.001$) and in the expected directions. That is, the relationship between WIF and marital tension was positive and the relationship between WIF and marital quality was negative. In contrast, neither of the hypothesized work-domain outcomes of FIW conflict was significant. FIW was not a significant predictor of either turnover intention or emotional exhaustion.

Thus, in our sample, the model of work-family conflict was only partially supported. Our results suggest that WIF acts as a linking variable between time and strain-based work issues and family functioning. However, our results do not support the contention

	n	%
Age		
20-29 years	39	19.3
30-39 years	72	35.6
40-49 years	41	20.3
50-59 years	43	21.3
60 years +	7	3.5
Gender		
Male	178	88.1
Female	24	11.9
Years worked in construction		
1-9 years	74	36.6
10-19 years	51	25.2
20-29 years	40	19.8
30 years +	37	18.3
Hours worked per week		
0-29 hours	4	2.0
30-39 hours	26	12.9
40-49 hours	92	45.5
50-59 hours	44	21.8
60 hours +	36	17.8
Work location		
On site	9	4.5
Site office	66	32.7
Head or regional office	126	62.4
Job description		
Site/project engineer	34	18.8
Project/construction manager	41	20.3
Contract administration	15	7.4
Foreman/supervisor	7	3.5
Support services	25	12.4
Engineering services	16	7.9
Corporate management	16	7.9
Other	6	3.0
Description of household		
Couple with dependant children	85	42.1
Couple with non-dependant children	31	15.3
Single parent	6	3.0
Couple without children	32	15.8
Single person	48	23.8
Spouse/partner		
Yes	158	78.2
No	43	21.3
Dependant children		
Yes	103	
No	99	
Country of birth		
Australia	166	82.2
Other	36	17.8

Table I.
Demographic characteristics of sample

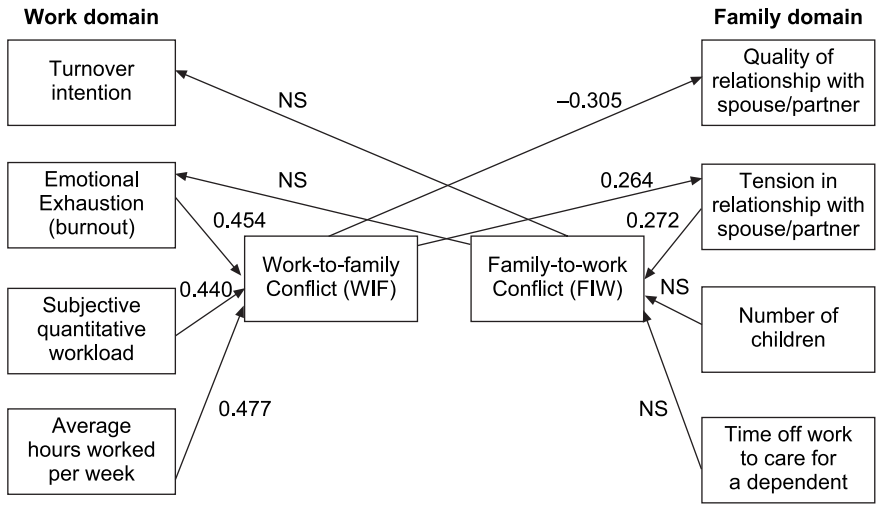


Figure 2.
Summary of standardized path coefficients for work-family conflict model

that FIW links time and strain-based family issues and work role performance or distress.

Path analysis results

The magnitude of the pathways between work antecedents and family outcomes of WIF can be determined by multiplying pathway coefficients together. This process is known as tracing (Cohen *et al.*, 2003) and provides an indication of the indirect effects of work domain variables on family life. Thus, the indirect effect of hours worked per week on tension in the marital relationship was: $0.477 \times 0.264 = 0.126$ (the direction of this pathway is not as important as the magnitude). The indirect effect of subjective qualitative workload on relationship tension was: $0.440 \times 0.264 = 0.116$, and the indirect effect of emotional exhaustion on relationship tension was $0.454 \times 0.264 = 0.120$. The indirect effect of average hours worked each week on the quality of the relationship with one's spouse/partner was: $0.477 \times -0.305 = -0.145$ (again, the direction of this pathway is not as important as the magnitude). The indirect effect of subjective qualitative workload on relationship quality was $0.440 \times -0.305 = -0.134$. The indirect effect of emotional exhaustion on relationship quality was $0.454 \times -0.305 = -0.138$. The size of these multiplicative pathway coefficients supports the contention that work domain variables are indirectly related to family role performance and distress in our sample. This indirect relationship occurs through employees' perceptions that work interferes with family life in a negative way. In contrast, no relationship was found between variables in the family domain and work role performance or distress.

Discussion

Domain specific antecedents and outcomes of work-family conflict

The results lend some support to the existence of domain-specific antecedents and outcomes of work-family conflict. That is, we have shown that time and strain-based issues in the workplace are significant antecedents of WIF and that WIF is a

significant predictor of the quality of relationships within families. However, FIW was not predicted, as expected, by family variables other than tension in the marital relationship. Neither were work-domain variables significantly predicted by FIW.

An asymmetrical relationship

Our results lend partial support to the theory that work-family conflict is a linking variable in the cross-role relationships between the work and family lives of Australian construction professionals. However, in our sample it appears that these cross-role relationships are asymmetrical in that time and strain-based variables in the work domain predicted WIF whereas, with the exception of marital tension, time and strain-based variables in the family domain did not predict FIW. WIF was also significantly negatively related to family functioning, while FIW was unrelated to job role performance or distress. Thus, in our sample, it seems that respondents' family life is highly susceptible to negative interference from work (via work-to-family conflict) but that respondents' work life is not significantly impacted by family interference with work.

This finding is inconsistent with the results of Frone *et al.* (1997), who report that both family distress and family overload were both significant predictors of FIW. Our non-significant findings could be because we used proxy measures of family time commitment and family overload and therefore it should not be assumed that family-domain predictors would not have a stronger predictive ability for FIW conflict were more direct measures of family time commitment and subjective family workload used.

An alternative explanation for the difference between our results and those of Frone *et al.* (1997) might be the fact that our sample was predominantly male. Male employees might be better able to isolate their work role performance from family impacts than female employees. One reason for this might be the traditional gendered division of domestic labour. In most societies, domestic work, child and dependant-care are perceived to be women's responsibility, while men fulfil the role of provider or "breadwinner" (Badgett and Folbre, 1999; Gutek *et al.*, 1991). Despite women's increased commitment to paid work, empirical research reveals that the primary responsibility for domestic duties in most households is still borne by women (Higgins *et al.*, 2000; Roxburgh, 2002). Thus, it is likely that demands in the family domain would be more likely to produce FIW among female employees than among male employees. This hypothesis should be tested in future research with more gender-balanced samples.

Implications for HRM in construction

The asymmetrical relationship between work and family life has implications for human resource management in the construction industry in which there is evidence of employees' dissatisfaction with their work-life balance. The fact that work domain variables have a negative impact on family life via work-family conflict suggests that responsible organizations should be proactive about trying to reduce the extent to which work interferes with employees' family lives. The results of the study suggest this could be achieved by addressing the time and strain-based issues experienced by professional and managerial employees. These include long work hours. In our sample, the average number of hours worked a week was 47.40 with a standard deviation of

10.524 but was apparent that the average work hours in the private sector organisation was substantially higher than that of the private sector organisation. The average number of hours worked by those in the public sector was 43.26 hours (SD = 7.766) and private sector was 56.52 years (SD = 10.088). In Australia, some prominent construction organizations have begun to address this by moving from a six to a five day working week, although the effect of compressing the working week in site-based construction roles needs to be carefully evaluated. For example, there are some suggestions that employees work the same number of hours over five, rather than six days, resulting in fatigue. Strain-based work issues, including employees' subjective sense of having too much to do in the time available and emotional exhaustion also need to be addressed in an attempt to curb the negative outcomes of work-family conflict for employees' families. Subjective quantitative workload might be addressed, for example, by implementing time management programmes which help employees to be more productive when they are at work as well as providing them with the confidence to go home at the end of the working day, leaving unfinished tasks for the following day. Research also suggests that emotional exhaustion can be mitigated by the creation of a work environment in which supervisors and co-workers are supportive of employees' work-life balance (Lingard and Francis, in press).

Conclusions

Our results provide evidence that when construction professionals and managers face obligations in one role that interfere with the enactment of a second role, performance in the second role suffers. However, this cross-role effect was only found to occur in one direction, i.e. negative interference from work to family life. Family life was not found to negatively impact on the job role performance of the managerial and professional construction employees in our sample. Reasons for this are unclear but the asymmetrical relationship between work and family life may, in part, be due to the predominance of male respondents in our sample. Nonetheless, our results confirm the importance of organizational practices for employees' family functioning. There is a growing need for Australian construction organizations to address issues of work-family balance in order to safeguard employees, whether male or female, from adverse family outcomes associated with long work hours and strain-based job demands. Further, the work-family balance performance of construction organizations should be scrutinized, alongside occupational health and safety and environmental indicators, as part of their overall corporate social responsibility (CSR) profile.

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