

WORK-FAMILY CONFLICT AS A MEDIATOR
OF THE WORK STRESS – MENTAL
HEALTH RELATIONSHIP

Steven Poelmans*

RESEARCH PAPER No 443
November, 2001

* Professor of Organizational Behavior, IESE

Research Division
IESE
University of Navarra
Av. Pearson, 21
08034 Barcelona - Spain

WORK-FAMILY CONFLICT AS A MEDIATOR OF THE WORK STRESS - MENTAL HEALTH RELATIONSHIP

Abstract

The relationship between work stressors and mental health outcomes has been demonstrated in a whole range of work stress models and studies. But less has been written about factors outside the work setting that might predict or moderate the relationship between work stressors and strain. In this exploratory study we suggest a model that links work stressors and “time-based” work-family conflict (TWFC) with mental health, with the intention to contribute to the refinement of the traditional work stress model. In a quantitative study of 115 Spanish managers, we found that TWFC mediates the relationship between some work stressors and mental health. This implies that mental health problems will increase if work stress spills over to the family and consequently causes work-family conflict. Future managerial stress research should further test TWFC as an intervening variable linking work stressors and mental health.

Keywords: Work-family conflict, stress, mental health, mediator, Spain.

WORK-FAMILY CONFLICT AS A MEDIATOR OF THE WORK STRESS - MENTAL HEALTH RELATIONSHIP

Introduction

Most models developed in the traditional stress literature are basically a statement of connections between stressors and strains. These models hypothesize a causal link between stressors as antecedents and mental, physical, behavioral or organizational problems as possible outcomes. As refinements to these models a number of moderator variables have been added, such as personality, health habits, control, social support, and coping.

In the last few decades a new line of research has evolved under the influence of the massive integration of women in the workforce, and consequently the increasing importance (and nowadays predominance) of dual-earner families. In this literature a central variable under investigation is work-family conflict (WFC). Several models in this research tradition have suggested a relationship between WFC and health outcomes (e.g. Greenhaus & Parasuraman, 1986; Ironson, 1992). In these models, WFC is considered as a stressor with a negative impact on health. Several authors, such as Burke (1988) and Greenglass, Pantony & Burke (1988), claim that WFC is an outcome of work stressors. This suggests that WFC may be a mediator or intervening variable between work stressors and health outcomes, and that reducing WFC would diminish the detrimental effects of work stress on health.

Literature on work stress

Most work stress models have copied the stressor-strain nucleus of the traditional general stress models and developed them for work contexts. Already in 1979, at the time of the early development of the work-family conflict (WFC) literature, Matteson and Ivancevich (1979) introduced family as an extra-organizational stressor in their work stress model. This model assumes a number of stressors at different levels that cause strain in the individual, moderated by a number of individual differences. This strain in turn results in behavioral, cognitive and physiological problems. According to the demand-control-support model (Karasek, 1985; Karasek & Theorell, 1990; Johnson & Hall, 1988), jobs that combine stressful working conditions, such as high workloads, with low levels of control or decision latitude and limited social support, are associated with more stress, more health problems and lower job performance. This model does not refer to influences coming from outside the work context. The Cooper model (Cooper, Cooper & Eaker, 1988), which served as a basis for the questionnaire used in this study, introduces the home-work balance as a stressor. This model links a range of antecedent stressors with outcomes or stress symptoms at the individual and

organization level that in the long run result in disease, both at individual and organizational level. It is interesting to observe that both the Matteson & Ivancevich model and the Cooper model assume that, respectively, family and the home-work interface are stressors.

The relationship between work stressors and mental health outcomes has been demonstrated in a wide range of studies. Problems of strain or mental distress, depression, burnout, impaired cognitive performance, psychosomatic complaints, anxiety, and apathy have all been associated with work stressors. The most important work stressors associated with psychological distress are job demands and lack of control (Karasek, 1990; Karasek & Theorell, 1990). One of the most frequently studied outcome variables examined in work settings, job satisfaction, can be considered a contra-indicator of mental health problems. A number of moderating variables have been studied as well. Personality (e.g. hardiness, neuroticism), negative affectivity, coping, locus of control, and social support have been found to moderate the influence of work stressors on strain and mental health. Work stress has also been studied outside the traditional Anglo-Saxon countries. Bhagat and his colleagues studied coping styles, decision latitude, organizational stress and psychological strain in 7 countries (Bhagat, O'Driscoll, Babakus, Frey, Chokkar, Ninokumar, Pate, Ryder, Gonzalez Fernandez, Ford & Mahanyele, 1994). It was found that organizational stress (i.e. combined scales for assessing role ambiguity, role conflict and work overload) was positively correlated with experienced strain beyond a significance level of 0.01 in all of the seven countries. The magnitude of the correlations was fairly high, ranging from 0.41 (New Zealand) to 0.68 (South Africa). The Collaborative International Study on Managerial Stress (CISMS), a recent study carried out in more than 22 countries, confirmed the relationship between work stress and mental strain across countries (Spector, Cooper, Sanchez, Sparks, Bernin, Dewe, Luo, Miller, Renault de Moreas, O'Driscoll, Pagon, Pitariu, Poelmans, Radhakrishnan, Russinova, Slamatorov, Salgado, Shanfa, Shima, Ling Siu, Stora, Teichmann, Theorell, Vlerick, Westman, Widerszal-Bazyl & Wong, 1998).

This leads us to the first hypothesis, which I will call the traditional model:

H1: Work stressors are associated with reduced mental health.

Literature on work-family conflict

Since the pioneering work of Pleck (1977), Kanter (1977), and Evans & Bartolomé (1981), there has been a general consensus that work and family influence each other in both positive and negative ways; time, tasks, attitudes, stress, emotions and behaviors spill over between work and family (Greenhauss & Beutell, 1985). In order to strive for conceptual clarity, several distinctions have been made.

First, there is the distinction between work-family conflict (WFC - work influencing family) and family-work conflict (FWC - family influencing work) (Frone, Russell & Cooper, 1992; Greenhaus, 1988; Greenhaus & Beutell, 1985; Gutek, Searle & Klepa, 1991; MacEwen & Barling, 1994; O'Driscoll, Ilgen & Hildreth, 1992; Williams & Alliger, 1994). It was found that the interface is asymmetric: work influences family more than vice versa (Hall & Richter, 1988; Wiley, 1987; Gutek, Searle & Klepa, 1991). Frone, Russell and Cooper (1992) found that work interferes three times more with family than vice versa. These researchers concluded that the influence of work on family is completely different from the influence of family on work. The latter is experienced as a threat to the maintenance of the desirable (job-related) self-image, with consequences for the general wellbeing of the employee. The same authors found different antecedents and consequences for the work-family interface and the family-

work interface. To avoid the conceptual confusion surrounding the work-family conflict variable, I will concentrate on work-family conflict (WFC), which is distinct from family-work conflict (FWC).

Second, there is the distinction between time-based, strain-based and behavior-based WFC or FWC (Carlson, Kacmar & Williams, 1998). In this study, I will concentrate on “time-based” WFC, i.e. work taking up time that is normally reserved for the family, through overtime, business trips, or taking work home. I concentrate on this type of WFC because of the idiosyncratic nature of working hours in Spain (the setting for this study) which makes the phenomenon of work-family conflict especially relevant. Working hours are typically from 9:00 AM till 8:00 PM, with a long lunch break between 2:00 PM and 4:00 PM.

Most Spanish managers and entrepreneurs do not take the long lunch break that would compensate for the long working day. One can expect that this might result in longer working hours in Spain. This has been confirmed by the Collaborative International Study on Managerial Stress (Spector, *et al.*, 2001). Spain had the highest average number of working hours of all nations. As suggested by the literature on working hours (for a recent overview, see Sparks, Cooper, Fried & Shirom, 1997), these long hours can result in more stress-related problems. In the study of Bhagat and colleagues (Bhagat *et al.*, 1994) Spain indeed reported the highest levels of organizational stress (MSpain = 74.6 vs. MTotal = 67.2) and psychological strain (MSpain = 23.4 vs. MTotal = 22.32). The Collaborative International Study on Managerial Stress also showed that Spain has one of the highest levels of mental strain (Spector *et al.*, 1998; Poelmans, Chinchilla & Cardona, 1999).

Work-family conflict as an outcome of work stress

Several studies have documented the spillover of work stress to the family (Barling & Rosenbaum, 1986; Beehr, Johnson, Nieva & Hurrell, 1995; Burke, 1982, 1986; Jackson & Maslach, 1982; Jackson, Zedeck & Summers, 1985; Jones & Fletcher, 1993; Matsui, Ohsawa & Onglatco, 1995; Parasuraman, Greenhaus & Granrose, 1992; Repetti, 1989; Westman & Etzion, 1995). In several models work stress is proposed as an antecedent of work-family conflict (Burke, 1988; Greenglass, Pantony & Burke, 1988). Higgins, Duxbury, and Irving (1992) found that work conflict is the most important predictor of family conflict and work-family conflict. Repetti (1989) reports different studies that have demonstrated a significant association between repeated exposure to job stressors and generally less satisfying family relations. Examples are the employed person’s decreased availability to and involvement with family members, and increased signs of anger and aggression in the family (Barling & Rosenbaum, 1986; Burke, 1982; Jackson & Maslach, 1982; Piotrkowski & Crits-Christoph, 1982; Repetti, 1987).

In this study I explore the relationship between specific work stressors and time-based WFC. Following Doby and Caplan (1995), I start from the idea that we should distinguish different work stressors, because some of them will affect the work-family interface or family more than others. Doby and Caplan found that high-threat stressors, in terms of threatening the reputation with the supervisor (they found lack of feedback, inadequate training, role overload and role ambiguity to be more threatening), are more likely to spill over from work to family. They claim that this is because these factors represent a threat to some of the employee’s basic needs, such as the need for self-esteem. Identifying specific work stressors that are related to WFC can help us to understand the subtleties of work stress spillover. This in turn can be important in the prevention of a negative impact of work on the family.

This leads us to the next hypothesis I want to test:

H2: The presence of work stressors is associated with higher levels of TWFC. More specifically, I expect that specific work stressors, more than others, will be related to TWFC

Work-family conflict as an antecedent of mental health problems

Several studies have demonstrated the negative effects of work-family conflict. Among those effects are more health risks for working parents, lowered performance in the parental role, lowered productivity at work, less life satisfaction, anxiety, work stress and reduced marital satisfaction of spouse (Kelly & Voydanoff, 1985; Greenhauss & Beutell, 1985; Pleck, 1985; Small & Riley, 1990; Voydanoff, 1987). Occupying multiple roles has been associated with role strain, psychological distress, and somatic complaints (Cooke & Rousseau, 1984; Frone, Russell & Cooper, 1991, 1992a; Menaghan & Parcel, 1990). WFC has also been linked to psychological distress (Frone, Barnes & Farrell, 1994; Hughes & Galinsky, 1994; Klitzman, House, Israel & Mero, 1990; MacEwen & Barling, 1994; Parasuraman, Greenhauss & Granrose, 1992). Burke (1988) tested a model in which work-family conflict leads to psychosomatic symptoms and negative feeling states. Greenglass (1985) found that interferences between job and family life are related to depression, irritation and anxiety in married female managers. Atkinson, Liem & Liem (1986) and Dew, Bromet & Shulberg (1987) found that work conflict influences the wellbeing and thus the functioning of the employee in his/her relationships as partner and/or parent. Grant-Vallone & Ensher (1998) found that expatriates who experienced that their work interfered with their personal life reported reduced vitality and depression. In this study I will focus on one outcome: mental health.

This leads us to the third hypothesis I want to test:

H3: TWFC is associated with reduced mental health.

Current Study

In the literature review I have hypothesized that time-based work-family conflict (TWFC) is both an outcome of work stress and an antecedent of mental health problems. This seems to suggest that, although two “traditional” work stress models suggest that the family or the home-work balance is a stressor (cf. Matteson & Ivancevich, 1979; Cooper, Cooper & Eaker, 1988), work-family conflict is in fact an intervening variable in the work stressor-mental health relationship rather than a stressor. I propose to concentrate on work stressors as antecedents or independent variables and mental health as an outcome or dependent variable. I will then introduce several traditional moderators (coping, control) and the central variable, time-based WFC, in the model. Our purpose is to find out whether I can refine the traditional model by introducing the time-based WFC variable and to see whether this variable can be considered as a stressor, as a consequence of work stressors or as a mediator of the work stressor-strain relationship. This leads us to the final hypothesis I want to test:

H4: Time-based work-family conflict is a mediator of the traditional relationship between work stressors and mental health.

Method

Sample and data collection

The Collaborative International Study on Managerial Stress (CISMS) (Sparks, Cooper, Spector, Bernin, Dewe, Luo, Miller, Renault de Moreas, O'Driscoll, Pagon, Pitariu, Poelmans, Radhakrishnan, Russinova, Slamatorov, Salgado, Sanchez, Shanfa, Shima, Ling Siu, Stora, Teichmann, Theorell, Vlerick, Westman, Widerszal-Bazyl & Wong, 1998; Spector *et al.*, 1998) was the reason to start our research on managerial stress and work-family conflict (WFC) in Spain. The purpose of the CISMS-study is to make a cross-cultural study of managerial stress and to suggest future research strategies and workplace interventions to enhance manager wellbeing in cultures at different stages of economic development (Sparks & Cooper, 1998).

Data were collected with a convenience sample of managers attending executive management courses (1). In order to obtain managers working at different levels of responsibility, I administered the questionnaire in both middle management and senior management courses (2). Respondents filled in the questionnaires at home and then sent them back to the researchers. With 115 of the 198 questionnaires that were handed out sent back, the response rate was 58%. In fact, I obtained managers from top (17.4%), higher (39.1%), middle (34.8%) and lower levels (6.1%) of their companies. The typical (average) respondent is male, 37 years old, with a university degree. He is married, has a working wife and two children of school age. He has a general management function in a small or medium sized company (less than 500 employees), with 10 years' experience in the company. Although he is expected to work only 41 hours, it is his own choice to work 52 hours a week. Table 1 gives an overview of demographic characteristics of the sample.

Table 1. Demographic characteristics of the sample

Sample characteristic	M	S.D.	Min	Max	Categories	Frequencies
Gender					Male Female	101 or 87.8 % 14 or 12.2 %
Age	37.77	5.33	30	52		
Seniority	10.46	7.35	0.20	34		
Marital status					Married	94 or 81.7%
Partner working status					Works Doesn't work	74 or 65.5% 39 or 34.5%
Number of children	1.47	1.08	0	4		
Educational level					University or higher	70 or 60.9%
Job level					Higher management Middle management or less	65 or 56.5% 50 or 43.5%
Working status					Full time	114 or 99.1%
Number of hours the respondent is supposed to work	41.83	5.3	35	75		
Actual number of hours worked	52.83	7.89	30	80		
Is the fact that the respondent works more hours than expected his own choice?					Own choice Not own choice Both	83 or 73.5% 21 or 18.6% 9 or 8%

Measures

Except for the questions on work-family conflict –which I added– all questions were drawn from the CISMS questionnaire. This standard CISMS questionnaire was used worldwide. It contained sections asking for factual data such as biographical information and career background, and a subjective evaluation of health habits, work satisfaction, health status, health-related behavior and interpretation, sources of mental pressure in the job, coping behavior, control over the work environment, and personal values.

The biggest section of the CISMS questionnaire consisted of the short version of the OSI2 (Occupational Stress Indicator) (Williams, 1996; Cooper, Sloan & Williams, 1988). One of the scales in the OSI2 is a measure of work stress that distinguishes eight subscales or different work stressors; workload, relationships, home/work balance, managerial role, personal responsibility, hassles, recognition, and organizational climate. Alphas were satisfactory for six of the eight subscales (0.60 or higher) and good for four of the eight subscales (0.70 or higher).

The workload subscale contained items that clearly refer to work interfering with family that can be confused with TWFC, the central variable in this study. Factor analysis confirmed that these items are closely related to the items in our measure of TWFC. Two workload items load on a second factor that contains the three TWFC-items. In order to avoid tautological relationships, I removed these items from the subscale. The workload subscale thus contains 4 instead of 6 items. The alpha coefficient of this “new” subscale was 0.66 (3).

Still drawing upon the OSI 2 (Occupational Stress Indicator), I have a measure of mental health with three subscales that distinguish between different aspects of mental health. The alpha for the mental health scale was satisfactory (0.77).

I also included measures of coping (OSI 2) and locus of control (Work Locus of Control Scale, Spector, 1988). Alphas were satisfactory for both scales (0.72).

To measure work-family conflict I constructed a short questionnaire of 15 items. All questions were scored on a 5-point scale, with 1=completely disagree and 5=completely agree. From this questionnaire, I formed a three-item scale of TWFC (alpha = 0.72). The items were: (1) “The time I spend with my family is insufficient”; (2) “My work interferes with my family life in the form of working extra hours, travelling abroad, receiving calls at home, and working at home”; (3) “My family and work demand time and energy and it’s almost impossible to combine both: I constantly experience a conflict between the two”.

(3) The items that were removed are item no. 17 - The sacrifices that my work imposes on my relationship with my partner and children ... is a source of pressure, and item no. 25 - The sacrifices that my work demands of my private and social life ... is a source of pressure.

Results

Table 2 presents the means, standard deviations, Chronbach's alphas and intercorrelations for all the variables in the present study – work stress, time-based work-family conflict, work locus of control, and mental health. The hypotheses were tested using Pearson correlation coefficients, linear regressions (SPSS) and structural equations modeling (EQS/Version 5 - Bentler & Weeks, 1980; Bentler & Wu, 1995; Jöreskog, 1978). In a first analysis (regression analysis) I found that coping has no significant effect on mental health. I therefore omitted this variable from the structural equations modeling.

Table 2. Number of items, maximum value, means, standard deviations, alphas, and correlations among the different subscales of work stress and the different scales of work locus of control (WLC), time-based work-family conflict (TWFC) and mental health

Variables	N°	Max.	M	s.d.	I	Ia	Ib	Ic	Id	Ie	If	Ig	Ih	Ij	2	3	4	4a	4b
1. Work stress	40	240	27.35	145.43	27.35	(.81)													
Ia. workload	4	24	3.99	15.18	3.99	.62**	(.66)												
Ib. relationsh.	8	48	8.5	30.8	8.5	.84**	.43**	(.88)											
Ic. work-fam.	6	36	6.3	19.7	6.3	.84**	.41**	.68**	(.80)										
Id mgr. role	4	24	3.3	14	3.3	.6**	.35**	.35**	.45**	(.48)									
Ie. respons.	4	24	3.8	14.5	3.8	.5**	.22*	.17°	.30**	.44**	(.72)								
If. hassles	4	24	4.3	3.15	4.3	.35**	.10	.25**	.21*	.40**	(.43)								
Ig. recognition	4	24	4.5	14.6	4.5	.72**	.30**	.67**	.57**	.28**	.1	.18	(.78)						
Ih. org. climate	4	24	3.4	14.6	3.4	.75**	.41**	.62**	.6**	.38**	.33**	.19*	.48**	(.60)					
Ij. WLC	16	96	44.96	7.63	1.9°	.26**	.25**	.122	-.09	-.15	.03	.25**	.09	(.72)					
3. TWFC	3	15	9.7	2.73	2.4*	.4**	.16°	.27**	.064	-.11	.09	.12	.19*	.23°					
4. Mental health	12	72	37.83	7.38	7.38	.18°	.24*	.19*	.03	.18°	.05	.14	.07	.24*	.26**	.29**	(.77)		
4a. Contentment	5	30	15.33	5.39	5.39	.18°	.22*	.17°	.05	.16°	.07	.14	.02	.3**	.11	.3**	.91**	(.83)	
4b. Peace mind	3	18	11.53	3.04	3.04	.06	.11	.08	-.067	.20*	.04	.03	.03	.16	.14	.14	.74**	.55**	(.64)
4c. Resilience	4	24	2.31	11	2.31	.12	.10	.13	.12	-.04	-.02	.13	.16°	-.08	.31**	.05	.11	-.16°	(.62)

N° Number of items

Max Maximum value

M Mean

s.d. Standard deviation

() Chronbach alpha

° Pearson correlation is significant at 0.1 level (two-tailed)

* Pearson correlation is significant at 0.05 level (two-tailed)

** Pearson correlation is significant at 0.01 level (two-tailed)

Hypothesis 1: Work stress and mental health

The first hypothesis examined the direct relationship between work stressors and mental health. I found partial support for this first hypothesis. The overall correlation between work stressors and mental health is weakly significant ($r = 0.18$, $P = 0.06$). I found that this relationship is due to three specific work stressors that are more clearly related to mental strain than others, i.e. workload ($r = 0.2$, $P < 0.05$), the role as a manager ($r = 0.19$, $P < 0.05$) and organizational climate ($r = 0.27$, $P < 0.01$).

Hypothesis 2: Work stress and time-based work-family conflict

Hypothesis 2 proposed a positive relationship between work stressors and TWFC. More specifically, I expected that some work stressors would and others would not be related to TWFC. I found clear support for this second hypothesis. Table 2 shows that there is a positive significant correlation between work stressors and TWFC ($r = 0.303$, $P < 0.01$). But a closer look at the different subscales gives a more detailed picture. Three out of eight work stressors are related to TWFC, i.e. workload ($r = 0.394$, $P < 0.01$), home-work balance ($r = 0.275$, $P < 0.01$), and organizational climate ($r = 0.187$, $P < 0.05$). The other work stressors are not related to TWFC.

Hypothesis 3: Time-based work-family conflict and mental health

Hypothesis 3 examined the relationship between TWFC and the mental health measure. Correlation analysis confirmed this hypothesized relationship ($r = 0.291$, $P < 0.01$).

Hypothesis 4: Time-based work-family conflict as mediator of the work stress - mental health relationship

Hypothesis 4 proposed TWFC as a mediator of the work stress - mental health relationship. To test the mediating effect of TWFC, I followed the three regression equations test proposed by Baron & Kenny (Baron & Kenny, 1986, p. 1177), in which three conditions must hold. First, after regressing the mediator on the independent variable, the independent variable must affect the mediator. This is the case, as can be seen in Table 3. Work stress affects work-family conflict (Table 3: $F = 6.183$, $P < 0.05$; $R^2 = 0.057$).

Table 3. Regression analysis with work stress as independent variable and time-based work-family conflict as dependent variable

Source	SS	df	MS	F	p
Work stress	45.915	1	45.915	6.183	0.015
Residual	757.431	102	7.426		
Total	803.346	103			

Second, after regressing the dependent variable on the independent variable, the independent variable must be shown to affect the dependent variable. This condition holds as well, as can be seen in Table 4, although the significance level is borderline: work stress impacts mental health (Table 4: $F = 3.56$, $P = 0.06$, $R^2 = 0.034$).

Table 4. Regression analysis with TWFC as independent variable and mental health as dependent variable

Source	SS	df	MS	F	p
TWFC	177.788	1	177.788	3.564	0.062
Residual	4988.418	100	49.884		
Total	5166.206	101			

Third, after regressing the dependent variable on both the independent variable and the mediator, the mediator must affect the dependent variable. This too is true, as reported in Table 5. In this model with two predictors, TWFC influences mental health (Table 5: $F = 6.32$, $P < 0.01$, $R^2 = 0.114$). If these conditions all hold in the predicted direction, then the effect of the independent variable must be less in the third equation than in the second. This again is true. Moreover, in the third equation the effect of TWFC is significant ($b = 0.28$; $P < 0.01$) and the effect of work stress is not significant ($b = 0.12$, $P = 0.22$).

Table 5. Regression analysis with work stress and TWFC as independent variables and mental health as dependent variable.

Source	SS	df	MS	F	p
xx	589.931	2	294.965	6.322	0.003
Residual	4572.584	98	46.659		
Total	5162.515	100			
Predictor	B	SE	β	t-value	p
Constant	26.15	4.12		6.346	0.0001
Work Stress	0.0348	0.028	0.121	1.236	0.22
TWFC	0.732	0.249	0.288	2.935	0.004

A last test allows us to see whether we can speak of “perfect mediation”. This is the case if the independent variable has no effect when the mediator is controlled. I double-checked this calculating a partial correlation. The correlation between work stress and mental

health is indeed not significant when I control for time-based work-family conflict ($r = 0.12$, $P = 0.22$). This confirms what was already suggested by the drop to non-significance of work stress in the third equation: I meet perfect mediation.

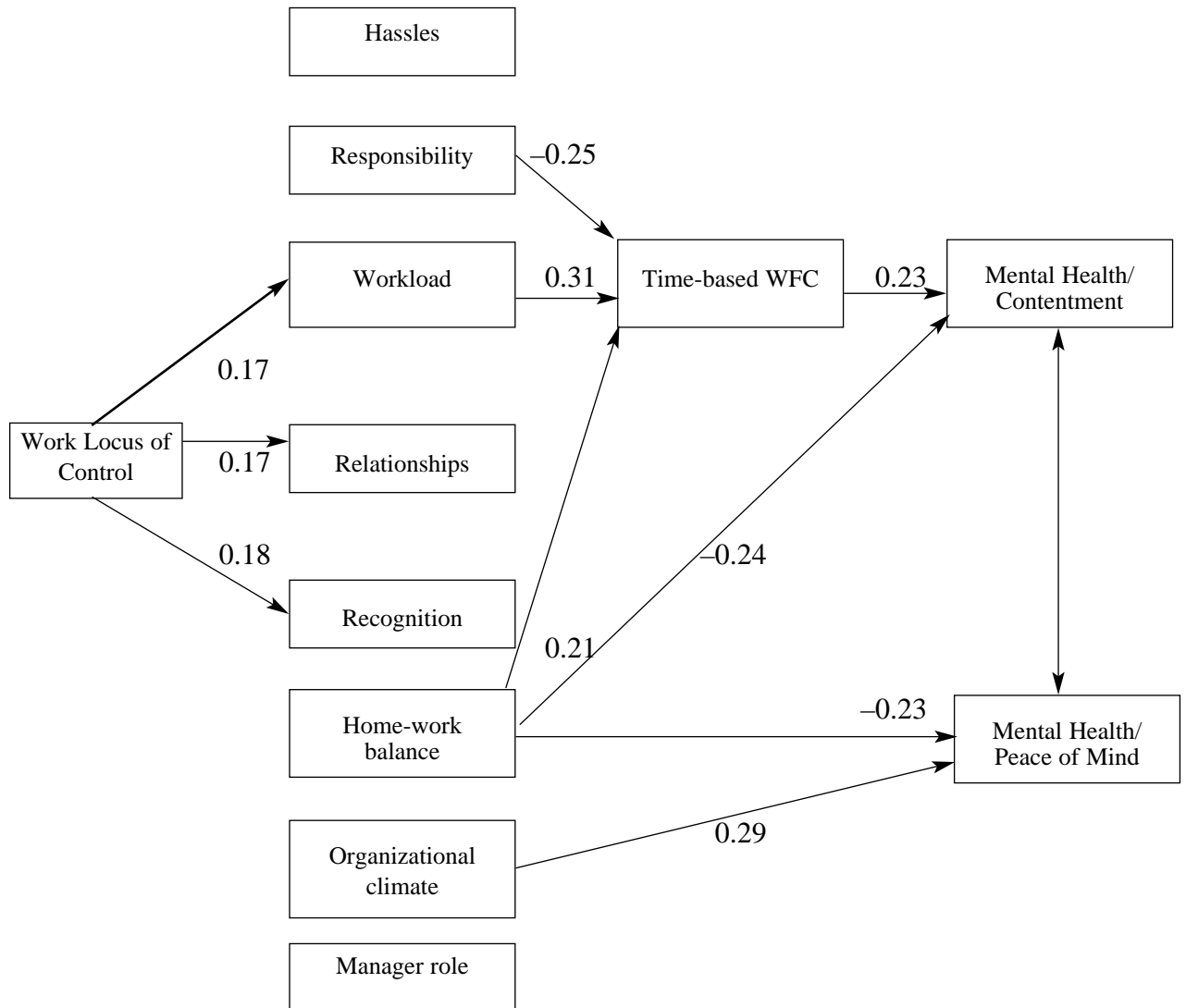
If I add two other variables to the model, i.e. work locus of control and coping, I get a significant model (Table 6: $F = 4.21$, $P < 0.01$, $R^2 = 0.15$). Significant predictors are TWFC ($b = 2.234$, $P < 0.05$) and work locus of control ($b = 2.227$, $P < 0.05$). The work stressor variable ($b = 0.07$, n.s.) and coping ($b = 0.03$, n.s.) do not contribute to the model.

Table 6. Regression analysis with work stress, TWFC, work locus of control and coping as independent variables and mental health as dependent variable

Source	SS	df	MS	F	p
	760.15	4	190.038	4.216	0.003
Residual	4281.69	95	45.07		
Total	5041.84	99			
Predictor	B	SE	b	t-value	p
Constant	18.30	7.245		2.257	0.013
WLCS	0.217	0.099	0.227	2.198	0.03
Work Stress	0.021	0.029	0.072	0.709	0.48
Coping	0.029	0.107	0.028	0.278	0.782
TWFC	0.592	0.254	0.234	2.328	0.022

Baron and Kenny (1986) also suggest estimating mediation paths by latent-variable structural modeling methods, such as LISREL and EQS. Figure 1 shows the standardized results of the structural equations model. The Satorra-Bentler scaled chi-square with 36 degrees of freedom was 58.03 (Satorra & Bentler, 1988) with probability value 0.01. The goodness-of-fit of the model was very satisfactory (Comparative Fit Index, CFI = 0.94). The paths representing the hypotheses of the model and all the other possible cross-paths between factors, as well as the correlations among residuals, were evaluated by Lagrange Multiplier and Wald tests.

Figure 1. Model obtained with EQS structural equations modelling*



*All mentioned values are significant.

In line with the above results, the model links work stressors with TWFC, and TWFC with mental health. But the picture we get now is more detailed. Only two work stress variables are directly associated with mental health: home-work balance (negatively) and organizational climate (positively). In other relationships TWFC functions as a mediator. This means that the relationship between work stress and mental health is only partially direct. An important part is indirect. This means that structural equations modeling partially supports hypothesis 4. At least for some work stressors –responsibility, workload and home-work balance– TWFC functions as a mediator.

The model also adds some detail to the other hypotheses. For instance, in the case of hypothesis 2, one of the relationships is negative and not –as I predicted– positive: responsibility (negative relationship), workload (positive) and home-work balance (positive). This adds some significant detail to hypothesis 2.

Discussion

The purpose of this exploratory study was to relate time-based work-family conflict (TWFC) with work stress and mental health, using a sample of Spanish managers. I proposed a model that introduces TWFC as a mediator variable in the link between work stress and mental health.

The internal consistency estimates of the focal variables were satisfactory, with all measures having alphas higher than the cut-off value of 0.7. It is interesting to report that some subscales of certain measures had very low alphas (managerial role and daily hassles and work stressors). This signals for caution when interpreting these variables and subscales.

The results support the notion that TWFC is related to both work stressors and mental health. Moreover, the three regression equations test and structural equations confirm our hypothesis that TWFC functions as a mediator in the work stress - mental strain relationship. Regression analysis showed that mental health can be explained mainly by variation in TWFC and work locus of control. When TWFC is introduced in the regression equation, the effect of work stressors drops to a non-significant level.

Structural equation modeling gives a more detailed picture. Our findings suggest that TWFC functions as an intervening variable between some work stressors (workload and managerial responsibility) and mental health. Another stressor, organizational climate, is directly related to mental health. Home-work balance has a special status: it is related both directly (negative relationship) and indirectly (positive relationship) to mental health. This is an intriguing result that certainly deserves further study. I also found that work locus of control (WLC) influences the effect of only some work stressors on health. I identified workload, relationships at work, and recognition as the variables that are influenced by WLC. I will now discuss the results in more detail.

I found a significant correlation between the work stressor measure and TWFC. A possible critique would be that this correlation is partly tautological since the work stressor measure includes a subscale (work-home balance) that is similar to the work-family conflict measure. But even after taking out the work-home balance subscale from the work stressor scale, there remained a significant relationship ($r = 0.284$, $P < 0.01$) between TWFC and work stress.

Closer inspection of Table 2 allows us to see the relationship between these variables and confirm the idea that this relationship is based on some and not all aspects (subscales) of work stress. TWFC is mainly related to stress resulting from work overload, a disturbed balance of work and home, and an unfavorable organizational climate. Contrary to Doby & Caplan's (1995) suggestion, it seems that it is not stressors that threaten the employee's reputation with his manager that are linked with work-family conflict. Rather, I found that work stressors that indicate an infiltration of work into family are related to TWFC.

The finding that workload is positively related to TWFC is to be expected since our measure of work-family conflict refers to time-based and not strain-based or behavior-based WFC. These two variables, however, are different, as shown by our factor analysis, and should be more clearly distinguished in future stress studies. Future research should explore the relationships between specific work stressors and different types of WFC.

Managerial responsibility is negatively related to TWFC. This indicates that having to take important decisions in risky, ambiguous situations actually reduces TWFC. Our interpretation of this result is that the “managerial responsibility” scale may be an indicator of the autonomy or the decision latitude / authority of the manager. Having more autonomy or authority also gives the manager more flexibility to deal with work-family incompatibilities, which logically should be associated with less work-family conflict.

I found a positive relationship between the home-work balance subscale of the OSI2 and our measure of TWFC. It could be argued that home-work balance and TWFC might be measuring the same thing: work-family conflict. A closer look at the items of the home-work balance scale gives a different picture. The subscale basically consists of items indicating a lack of social support in general, items relating to incompatibility of career and family, and lack of stability and security in family life. Thus, the home-work balance subscale measures a phenomenon different from work-family conflict. Only two career-related items might refer to a conflict between work and family. Our interpretation of this result is that a lack of social support, career incompatibilities and family instability increases TWFC.

Regression analysis revealed that TWFC is the dominant factor explaining variance in mental health. Structural equation modeling confirmed that TWFC has the strongest effect on mental health and that it actually intervenes in the effects of workload, high responsibility and low social support on mental health. This result can be interpreted as “high workloads, low responsibility/autonomy and low social support may cause mental health problems only if they undermine the family by causing work-family conflict”. This has important implications both for scholars who have to consider TWFC as a possible intervening variable, and for practitioners, therapists, and policy makers who have to deal with mental health problems. The results of this study suggest that mental health can be improved by reducing conflicts between work and family.

Organizational climate and home-work balance are the only variables that directly influence mental health. Especially fascinating is the direct, negative relationship between the home-work balance subscale and mental health, which can be contrasted with the indirect, positive effect. Our interpretation of this result is that the predominantly male managers in our sample who experience less social support and more incompatibility with their family actually experience this as positive because it allows them to concentrate more on their work and careers. A lack of social support can also be interpreted as social isolation of worrying influences from family life. We might expect a different configuration in the case of female managers. Further research should test whether this isolation effect can be found in female managers.

Our results suggest that Work Locus of Control, generally accepted as an important moderator variable in the traditional work stressor-mental health relationship, may only relate to some work stressors, i.e. workload, relationships at work, and recognition. This is not a complete surprise because these subscales refer to aspects of the managerial work environment that are difficult to control: workload, colleagues, and superiors. An important result is that in our regression the significance of Work Locus of Control as an explaining variable of mental health substantially diminishes in the presence of TWFC.

The present study included only work stressors as antecedents of TWFC. Future research should take into account other antecedents that have been identified in the literature such as family demands, family support, and involvement in both work and family. It is important to see whether and how these different variables contribute to explaining TWFC and mental health. Similarly, although the present study focuses on mental health as a possible outcome, there are other outcomes that should be examined. Links with work, family, work-family satisfaction, and physical health should be studied. It would also be interesting to study the effect of time-based family-work conflict (TFWC) on-the-job performance (productivity, quality of work, capacity to innovate) and the effect of TWFC on performance as spouse or parent. We can expect that the attitude of the employee towards his or her firm will be affected by TWFC. We can think of reduced job satisfaction, the intention to quit the job, reduced organizational citizenship behavior, turnover and absenteeism. Indices of employee's mental health should also include more "managerial" variables such as cognitive performance in the job, quality of decision-making and long-term effects such as burnout and depression. Ideally, these consequences should be assessed in a longitudinal research design since we can expect work-family conflict to have only a delayed effect on mental health.

Caution should be exercised regarding the types of inferences drawn from the present study's results because of particular characteristics of the sample and the cross-sectional nature of the data. This study is clearly exploratory in nature. The participants in this study are a convenience sample of managers attending management courses at a certain point in time. We can expect that managers attending management courses are probably not representative of managers as a whole. The fact that they were taking courses at the time of the study probably represents an additional pressure on their family time. Another aspect is that the majority of managers in our sample had working spouses and children, which increases the probability of TWFC. Future research should control for cultural and demographic variables to see whether these results can be generalized.

The fact that the study used cross-sectional data prevents us from drawing any conclusions regarding causality and directionality. I suspect a complex process underlying the WFC phenomenon, in which social support plays a pervasive role (Cohen & Wills, 1985). I already pointed out in the literature review that the more work interferes with family, the lower the emotional and instrumental support from the family is. This reduced social support undermines the employee's resilience, which could make him or her more susceptible to the influence of work stressors. Following this line of reasoning, TWFC would in fact be the source of a destructive, self-enforcing process. In our opinion, a process-driven examination of the WFC phenomenon is required.

Finally, we should be cautious about generalizing the results beyond the Spanish context. The literature suggests that Spanish managers may experience higher degrees of work-family conflict because of the higher number of working hours, higher levels of organizational stress, different culturally determined coping patterns, unfavorable health habits such as smoking, and the typical importance of the family in Latin countries. Future research should collect cross-cultural data in order to see whether the result of this study can be generalized to other nations or cultures (Ayree, Luk, Leung & Lo, 1998; Ayree, Fields & Luk, in press).

References

- Atkinson, T., Liem, R. & Liem, J. (1986). The social costs of unemployment: Implications for social support. *Journal of Health and Social Behavior*, 27, 317-331.
- Barling, J. & Macewen, K.E. (1992). Linking work experiences to facets of marital functioning. *Journal of Organizational Behavior*, 13, 6, 573-583.
- Barling, J. & Rosenbaum, A. (1986). Work stressors and wife abuse. *Journal of Applied Psychology*, 71, 346-348.
- Baron, R.M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 6, 1173-1182.
- Beehr, T.A., Johnson, L.B., Nieva, R. & Hurrell, J.J.Jr (1995). Occupational stress: coping of police and their spouses. *Journal of Organizational Behavior*, 16, 1, 3-28.
- Bentler, P.M. & Weeks, D.G. (1980). Linear structural equations with latent variables. *Psychometrika*, 45, 289-308.
- Bentler, P.M. & Wu, E.J.C. (1995). *EQS for Windows user guide*. Encino, CA: Multivariate Software, Inc..
- Bhagat, R.S., O'Driscoll, M.P., Babakus, E., Frey, L.; Chokkar, J., Ninokumar, B.H., Pate, L.E., Ryder, P.A., Fernandez, M.J.G., Ford, D.L. & Mahanyele, M. (1994). Organizational stress and coping in seven national contexts: A cross-cultural investigation. In G.P. Keita & J.J. Hurrell Jr. (Eds), *Job stress in a changing workforce: Investigating gender, diversity, and family issues*. Washington, DC: American Psychological Association.
- Burke, R.J. (1982). Occupational demands on administrators and spouses' satisfaction and well-being. *Psychological Reports*, 51, 823-836.
- Burke, R.J. (1988). Some antecedents and consequences of work-family conflict. *Journal of Social Behavior and Personality*, 3, 4, 287-302.
- Cohen, S. & Wills, T.A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310-357.
- Cooper, Cooper & Eaker (1988). *Living with stress*. London: Penguin Books.
- Cooke, R.A. & Rousseau, D.M. (1984). Stress and strain from family roles and work-role expectations. *Journal of Applied Psychology*, 69, 2, 252-260.
- Cooper, C., Sloan, S.J. & Williams, S. (1988). *The Occupational Stress Indicator*. Windsor: NFER Nelson.
- Dew, M., Bromet, E. & Shulberg, H. (1987). A comparative analysis of two community stressors' long term mental health effects. *American Journal of Community Psychology*, 15, 167-184.
- Doby, V.J. & Caplan, R.D. (1995). Organizational stress as a threat to reputation: effects on anxiety at work and at home. *Academy of Management Journal*, 38, 4, 1105-1123.
- Evans, P. & Bartolomé, F. (1981). *Must success cost so much? Avoiding the human toll of corporate life*. New York: Basic Books, Inc..
- Frone, M.R., Barnes, G.M. & Farell, M.P. (1994). Relationship of work-family conflict to substance use among employed mothers: The role of negative affect. *Journal of Marriage and the Family*, 56, 1019-1030.
- Frone, M.R., Russell, M. & Cooper, M.L. (1991). Relationship of work and family stressors to psychological distress. *Journal of Social Behavior and Personality*, 6, 227-250.
- Frone, M.R., Russell, M. & Cooper, M.L. (1992). Antecedents and outcomes of work-family conflict: testing a model of the work-family interface. *Journal of Applied Psychology*, 77, 1, 65-78.
- Frone, M.R., Russell, M. & Cooper, M.L. (1992). Prevalence of work-family conflict: Are work and family boundaries asymmetrically permeable? *Journal of Organizational Behavior*, 13, 7, 723-729.

- Greenhaus, J.H. (1988). The intersection of work and family roles: individual, interpersonal, and organizational issues. *Journal of Social Behavior and Personality*, 3, 4, 23-44.
- Greenhaus, J. & Beutell, N. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, 10, 76-88.
- Greenhaus, J.H. & Parasuraman, S. (1986). A work-nonwork interactive perspective of stress and its consequences. *Journal of Organizational Behavior Management*, 8, 2, 37-60.
- Greenglass, E.R. (1985). Psychological implications of sex bias in the workplace. *Academic Psychology Bulletin*, 7, 227-240.
- Greenglass, E.R., Pantony, K.L., & Burke, R.J. (1988). A gender-role perspective on role-conflict, work stress and social support. *Journal of Social Behavior and Personality*, 3, 4, 317-328.
- 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.
- Hall, D.T. & Richter, J. (1988). Balancing work life and family life: What can organisations do to help? *Academy of Management Executive*, 2, 213 - 223.
- Higgins, C.A. & Duxbury, L.E. (1992). Work-family conflict: a comparison of dual-career and traditional career men. *Journal of Organizational Behavior*, 13, 4, 389-411.
- Higgins, C.A., Duxbury, L.E. & Irving, R.H. (1992). Work-family conflict in the dual career family. *Organizational Behavior & Human Decision Processes*, 51, 1, 51-75.
- Hughes, D.L. & Galinsky, E. (1994). Gender, job, family conditions, and psychological symptoms. *Psychology of Women Quarterly*, 18, 251-270.
- Ironson, G. (1992). Work, job stress and health. In S. Zedeck (Ed.), *Work, families and organizations*. San Francisco: Jossey-Bass Publishers.
- Jackson, S.E. & Maslach, C. (1982). After-effects of job-related stress: families as victims. *Journal of Occupational Behavior*, 3, 63-77.
- Jackson, S.E., Zedeck, S. & Summers, E. (1985). Family life disruptions: effects of job-induced structural and emotional interference. *Academy of Management Journal*, 28, 3, 574-586.
- Johnson, J.V. & Hall, E.M. (1988). Job strain, workplace social support and cardiovascular disease: A cross-sectional study of a random sample of the Swedish working population. *American Journal of Public Health*, 78, 1336-1342.
- Jones, F. & Fletcher, B. (1993). An empirical study of occupational stress transmission in working couples. *Human Relations*, 46, 7, 881-901.
- Jöreskog, K.G. (1978). Structural analysis of covariance and correlation matrices. *Psychometrika*, 43, 443-477.
- Kanter, R. (1977). *Work and Family in the United States: a critical review and agenda for research and policy*. New York: Sage.
- Karasek, R.A. (1985). *Job Content Instrument: Questionnaire and user's guide*. Los Angeles: Department of Industrial and Systems Engineering, University of Southern California.
- Karasek, R.A. & Theorell, T. (1990). *Healthy Work. Stress, productivity, and the reconstruction of working life*. New York: Basic Books, Inc..
- Kelly, R. & Voydanoff, P. (1985). Work family role strain among employed parents. *Family Relations*, 34, 367 - 374.
- Klitzman, S., House, J., Israel, B.A. & Mero, R.P. (1990). Work stress, nonwork stress and health. *Journal of Behavioral Medicine*, 13, 221-243.
- Macewen, K.E. & Barling, J. (1994). Daily consequences of work interferences with family and family interference with work. *Work & Stress*, 8, 244-254.
- Matsui, T., Ohsawa, T. & Onglatco, M. (1995). Work-family conflict and the stress-buffering effects of husband support and coping behavior among Japanese married women. *Journal of Vocational Behavior*, 47, 178-192.
- Matteson, M.T. & Ivancevich, J.M. (1979). Organizational stressors and heart disease: a research model. *Academy of Management Review*, 4, 3, 347-357.

- Menaghan, E.G. & Parcel, T.L. (1990). Parental employment and family life: Research in the 1980s. *Journal of Marriage and the Family*, 52, 1079-1098.
- 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., Greenhaus, J.H. & Granrose, C.S. (1992). Role stressors, social support, and well-being among two-career couples. *Journal of Organizational Behavior*, 13, 4, 339-356.
- Piotrkowski, C.S. & Crits-Christoph, P. (1982). Women's jobs and family adjustment. In J. Aldous (Ed.), *Two paychecks: life in dual-earner families*. Beverly Hills, CA: Sage.
- Pleck, J.H. (1977). The work-family role system. *Social Problems*, 24, 417 - 427.
- Pleck, J.H. (1985). *Working wives / working husbands*. Beverly Hills, CA: Sage.
- Rapoport, R. & Rapoport, R.N. (1980). Three generations of dual-career family research. In F. Pepitone-Rockwell (Ed.), *Dual career couples*. Beverly Hills, CA: Sage.
- Repetti, R.L. (1987). Linkages between work and family roles. In S. Oskamp (Ed.), *Applied Social Psychology Annual: Vol. 7. Family processes and problems*. Beverly Hills, CA: Sage.
- Repetti, R.L. (1989). Effects of daily workload on subsequent behavior during marital interaction: the roles of social withdrawal and spouse support. *Journal of Personality and Social Psychology*, 57, 4, 651-659.
- Satorra, A. & Bentler, P.M. (1988). Scaling corrections for the chi square statistics in covariance structure analysis. In *American Statistical Association 1988 proceedings of the business and economic sessions*. Alexandria, VA: American Statistical Association.
- Small, S.A. & Riley, D. (1990). Towards a multidimensional assessment of work conflict into family life. *Journal of Marriage and the Family*, 52, 56-61.
- 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.
- Spector, P.E. (1988). Development of the work locus of control scale. *Journal of Occupational Psychology*, 61, 335-340.
- Spector, P., Cooper, C.L., Sanchez, J.I., Sparks, K., Bernin, P., Büssing, A., Dewe, P., Hart, P., Lu, L., Miller, K., Renault de Moreas, L., O'Driscoll, M., Ostrognay, G.M., Pagon, M., Pitariu, H., Poelmans, S., Radhakrishnan, P, Russinova, V., Slamатов, V., Salgado, J., Shima, S., Ling Siu, O., Stora, J.B., Teichmann, M., Theorell, T., Vlerick, P., Westman, M., Widerszal-Bazyl, M. & Wong, P., Yu, S. (2001). A 24 nation / territory study of work locus of control, well-being, and individualism: How generalizable are western work findings? *Academy of Management Journal*, August forthcoming.
- Voydanoff, P. (1987). *Work and family life*. Beverly Hills, CA: Sage.
- Westman, M. & Etzion, D. (1995). Crossover of stress, strain and resources from one spouse to another. *Journal of Organizational Behavior*, 16, 2, 169-181.
- Wiley, D.L. (1987). The relationship between work/nonwork role conflict and job-related outcomes: Some unanticipated findings. *Journal of Management*, 13, 467-472.
- Williams, K. & Alliger, G.M. (1994). Role stressors, mood spill-over, and perceptions of work-family conflict in employed parents. *Academy of Management Journal*, 37, 4, 837-868.

Unpublished references

- Ayree, S. Fields, D. & Luk, V. (in press). A cross-cultural test of a model of the work-family interface.
- Aryee, S., Luk, V., Leung, A. & Lo, S. (1998). Role stressors, work-family conflict and well-being: an examination of the effects of spouse support and coping behaviors among employed parents in Hong-Kong. Paper presented at the Academy of Management, San Diego.
- Buelens, M. & Poelmans, S. (1996). The work-family interface. Typology based on physical and mental spill-over of stress. Paper presented at the Conference of the International Stress Management Association, Sydney.
- Carlson, D.S. Kacmar, K.M. & Williams, L.J. (1998). The development and validation of a multidimensional measure of work-family conflict. Paper presented at the Academy of Management, San Diego.
- Grant-Vallone, E.J. & Ensher, E.A. (1998). The effect of work and personal life conflict and organizational support. Paper presented at the Academy of Management Conference, San Diego.
- Poelmans, S., Chinchilla, N. & Cardona, P. (1999). An exploratory study of managerial stress in Spain. Research paper n°. RP-399 of the Research Division of IESE, Barcelona, Spain.
- Poelmans, S., Cardona, P., Chinchilla, N. (1999). Stress management and management stress in Spain. Paper presented at the World Conference on Stress, Melbourne.
- Sparks, K. & Cooper C.L. (1998). Cross-cultural comparisons of managerial stress. Paper presented at the World Conference on Stress, Melbourne.
- Sparks, K., Cooper, C.L., Spector, P., Bernin, P.B., Dewe, P., Luo, L., Miller, K., Renault de Moreas, L., O'Driscoll, M., Pagon, M., Pitariu, H., Poelmans, S., Radhakrishnan, P., Russinova, V., Slamatorov, V., Salgado, J., Sanchez, J.I., Shanfa, Y., Shima, S., Ling Siu, O., Stora, J.B., Teichmann, M., Theorell, T., Vlerick, P., Westman, M., Widerszal-Bazyl, M. & Wong, P. (1998). The price of economic development: a 22 nation study of occupational stress in male and female managers. Manuscript submitted to the *Journal of Occupational and Organizational Psychology*.
- Williams, J.S. (1996). A critical review and further development of the Occupational Stress Indicator. Unpublished Doctoral Thesis, UMIST, UK. □