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Crossover and work-home interference

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In the present study, we examine crossover - the transmission of stress and strain from one spouse to another - in a sample of 78 information technology (IT) professionals and their working spouses. This research places crossover within the role theory framework via work-home interference (WHI) and home-work interference (HWI). The research design was cross-sectional and used self-report data. Results of hierarchical regression analysis indicated the following: (H1) For IT professionals, WHI was directly linked to work-related outcomes (i.e., burnout, health complaints); (H2) Crossover effects were found between the partner HWI and the exhaustion of the IT professional. For IT professionals, negative affectivity was significantly associated with exhaustion and cynicism, whereas for the spouse, negative affectivity was significantly associated with exhaustion and turnover intentions. The relevance of these findings to crossover research is discussed.

Introduction

Crossover is defined as the reaction of individuals to the job stress and strain experienced by those with whom they interact regularly (between-individuals). So, within any couple, the demands of the job (stressor) or feelings of burnout (strain) can contribute to the stress and/or strain of his/her partner. Westman and Etzion (1995) note that while the spillover of experiences from one domain of a person's life to another has been documented extensively, the phenomenon of how the stress and strain of one person affects other individuals has been less exhaustively investigated. The aim of the following study is to examine both spillover and crossover processes in a sample of information technology professionals and their working spouses.

Theoretical background

Westman (2001) has noted that the crossover literature does not reveal one overall systematic theoretical and empirical approach that distinguishes between the possible

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explanations of crossover effects. Indeed, three mechanisms have been identified as explaining crossover: a direct process, a spurious effect via common stressors, and an indirect effect. The direct effect is based on the idea that crossover effects appear between closely related partners who share and care for each other. Such a role for empathy is supported by those researchers interested in perspective taking and empathic concern (e.g., Davis, 1983), who suggest that individuals imagine how they would feel in the position of another, and consequently experience such feelings (Eckenrode & Gore, 1981). The common stressors mechanism as suggested by Westman and Vinokur (1998) suggests that crossover is the result of common stressors in a shared environment. This view suggests that people in close relationships may experience shared stressors (e.g., economic hardship), creating psychological strain in both of them. The indirect mechanism is posited on the idea that a partner's strain may exhaust his/her spouse's ability to cope, thereby increasing the said partner's vulnerability to stress (Burke, Weir, & DuWors, 1980; Jackson & Maslach, 1982). Consideration of these three mechanisms together provides the background to the routes to which stress can 'travel' from one partner to another. In the present study, we are primarily interested in the way that the interference felt between the work and family roles contribute to strain experienced by the respective partner. As such, the conceptualisation of crossover in the present study is closest to the Westman and Vinkour (1998) idea of common stressors. For example, an impending deadline may cause a person to miss a family event and thus the strain experienced is 'passed' on to the spouse, who also is affected by the event. Indeed, there is already evidence (see Fletcher, 1991) that the effects of work stress carry over to the home, such that the well-being of the cohabiting partner can also be adversely affected. Therefore, the present study will extend the crossover paradigm by focusing on Work-Home Interference (WHI) and Home-Work Interference (HWI). WHI and HWI can be considered as outcomes of the involvement in work and family roles associated with being in a dual-earner couple. WHI and HWI are experienced when pressures from the work and family roles are mutually incompatible, such that participation in one role makes it difficult to participate in the other (Greenhaus & Beutell, 1985).

Crossover presents a way of extending and understanding the impact that WHI/HWI can have across individuals. Westman (2001) suggests that crossover could be theoretically anchored to role theory (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Role theory suggests that work and home are involved in elaborate interchanges over time and within different social environments. According to Westman (2001), the usefulness of role theory for understanding WHI and HWI is that it underscores the interrelations between the focal person and his/her role senders in the different settings (work/home) where the individual finds his/herself. Role theory is a sound basis for crossover research, as first, it relates both to the person and to his or her role senders, thus encompassing spouses and the interaction between them, and second, because it focuses on a wider role stress paradigm that the WHI models. The model delineated in Figure 1 uses role theory as an anchor for the theoretical development. The core assumption is that one's stress or strain has an impact on others in different settings, indicating a relationship between stress and strain in the individual arena and the stress and strain between two people.

In sum: Thus, in spillover, stress experienced in one domain of life results in stress in the other domain for the same individual; whereas in crossover, stress experienced

in one domain (i.e., work, home) by the individual leads to stress being experienced by the individual's spouse. In this sense, spillover is an intra-individual transmission of stress, whereas crossover is dyadic and an inter-individual transmission of stress or strain (Westman, 2001). First of all it is important to see how one's stress affects one's own level of strain, and in the second stage, how one's strain affects the strain of one's partner.

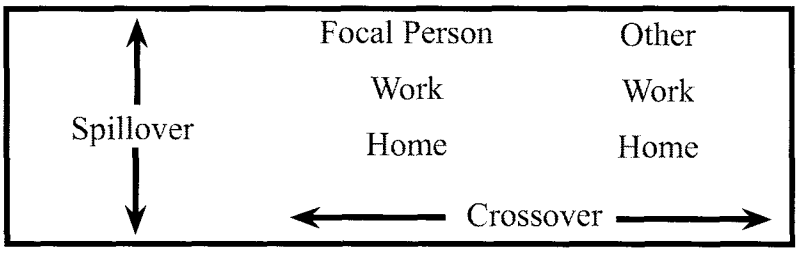

Figure 1. Theoretical model of spillover and crossover.

Negative affectivity

A personal trait relevant to crossover research is negative affectivity (NA), defined by Watson and Clark (1984) as a stable tendency to express negative emotions across time and situations. The present research will adhere to the advice of Spector, Zapf, Chen, and Frese (2000) to include NA in studies of stressor-strain relationships. The present study will provide for a more differentiated view of the NA process by specifying between NA at home and NA at work. Given that NA is assumed to be stable across both time and situations, this will provide an opportunity to assess how stable NA is across the domains of work and home. Therefore, in the present study, NA at both home and work of both the IT professional and their spouse will be accounted for and controlled for.

Outcome variables

The meta-analysis of Allen, Herst, Bruck, and Sutton (2000) presents the most comprehensive review of the consequences associated with WHI. Conceptually, Allen et al. (2000) divided the consequences into three general areas: work-related outcomes, non-work related outcomes, and stress-related outcomes. In the present research, we will examine outcomes in these three areas also: marital satisfaction (non-work related outcome), turnover intention (work-related), and burnout and psychosomatic complaints (stress-related outcomes). In terms of the chosen outcomes, evidence exists for burnout (Pavett, 1986; Westman & Etzion, 1995), psychosomatic symptoms (Burke et al., 1980), and marital satisfaction (Jackson & Maslach, 1982; Parasuraman, Greenhaus, & Granrose, 1992) as potential crossover variables. Turnover intentions have been studied in the crossover literature with regard to expatriate cross-cultural adjustment (Takeuchi, Yun, & Tesluk, 2002). Takeuchi et al. (2002) found that expatriates' adjustment was related to satisfaction, which in turn, was found to be negatively related to expatriates' intention to return to return to their homeland. The chosen outcome variables represent a broad range of measures to assess the effects of WHI/HWI within individuals (spillover) and between individuals (crossover).

Study aims

The present research will contribute to the transference of stress literature by demonstrating that there is a link between the stressor of one partner and the strain experienced by their spouse. In addition, this research will control for the effects gender and NA, variable shypothesised to inflate the relationship. A within-individual relationship between stress (WHI/HWI) and strain (e.g., burnout, satisfaction) for each individual within the dyad can be expected (see Allen et al., 2000 for a review of the literature). Therefore, our initial prediction addressed itself to this expected relationship.

Prediction 1: There will be a direct relationship between WHI/HWI and the work-related/non-work related outcomes, after controlling for gender and NA.

The potency of the dyad in the transmission of stress from one partner to another can be found in the interviews conducted by Pearlin and Turner (1987). They found that, although interviewees would try to segregate the stress arising from the workplace and from the family domain, stress would be transmitted in other ways. Spouses reported that they could tell when their partners were stressed, regardless of whether the partner referred to it. Based on the research and theory of crossover effects (Westman, 2001), the following prediction was examined.

Prediction 2: The WHI/HWI of one spouse will exhibit a crossover relationship with the work-related/non-work related outcomes of his/her spouse after controlling for gender and NA.

Method

Sample and procedure

Members of the professional association for IT professionals in the Netherlands were contacted via post. Questionnaires were provided in Dutch, as this was the first language of the study participants. Participants were asked to fill in the enclosed questionnaire and pass a second questionnaire to their spouse to fill in. Participants were urged to fill out their respective questionnaires separately and return the questionnaires in the pre-paid envelopes provided (two separate envelopes were provided). In total, 84 couples agreed to participate in the study, and the final sample equalled 78 dual-working couples, after removing six individuals who had no paid job.

The final sample consisted of 78 couples (all were male-female couples). Sixty-two percent of these dyads had children living at home. Within the IT professionals, 91% were male. Participants ranged in age from 28 to 75 years. Two individuals were over the 'normal' age of retirement (65 years); both were male: the 75 year old worked as an IT teacher ten hours per week and the 71 year old worked with his partner in their translation firm (but did not fill in amount of hours he worked). The mean age of the sample was 47.78 years (SD = 7.9 years) for IT professionals and a mean age of 46 years (SD = 8.7 years) for their partners. Average hours worked by IT professionals was significantly higher than their spouses (mean hours of IT workers = 43.39 hours, mean hours of their spouses = 29.55 hours, $t(154) = 7.60$, $p < 0.000$).

Measures

Work-Home Interference (WHI) and Home-Work Interference (HWI)

WHI and HWI were measured using one instrument, covering both sub-scales: the Survey Work-Home Interference Nijmegen (SWING; Wagena & Geurts, 2000). The SWING is

a work-home interference measure developed by researchers in the Netherlands (Wagena & Geurts, 2000). WHI, referring to a negative impact of the work situation on one's functioning at home (e.g., "your work schedule makes it difficult for you to fulfil your domestic obligations"), is measured by nine items. HWI, referring to a negative impact of the home situation on one's job functioning (e.g., "you arrive late at work because of domestic obligations"), is measured by six items. All items are scored on a 4-point scale from '0' (never) to '3' (always). The scales were internally consistent for both the IT workers (alpha for WHI = 0.76, alpha for HWI = 0.70) and their spouse (alpha for WHI = 0.83, alpha for HWI = 0.60). The reliability estimate was unsatisfactory for the HWI of the partner ($\chi = 0.60$), but as removal of items did not improve the estimate significantly, the scale was left intact.

Burnout

The MBI-GS was used to assess burnout (Schaufeli, Leiter, Maslach, & Jackson, 1996). The MBI-GS includes three sub-scales: exhaustion (five items; e.g., "I feel used up at the end of the workday"), cynicism (five items; e.g., "I have become less enthusiastic about my work") and professional efficacy (which was not included in this study), and has been validated with Dutch samples. All items are scored on a 7-point frequency rating scale ranging from '0' (never) to '6' (daily). High scores on the exhaustion and cynicism sub-scales are indicative of burnout. In the present study, we restrict ourselves to the exhaustion and cynicism dimensions of burnout. These two dimensions are generally considered as the 'core of burnout' (Green, Walkey, & Taylor, 1991), whereas professional efficacy seems to reflect a personality characteristic rather than a genuine burnout-component (Cordes & Dougherty, 1993; Shirom, 1989). Empirically, this is reflected by the relatively low correlation of professional efficacy with both of the other burnout dimensions (Lee & Ashforth, 1996), and by the fact that cynicism seems to develop in response to exhaustion, whereas professional efficacy seems to develop independently and in parallel (Leiter, 1993). The scales were internally consistent for both the IT workers (alpha for exhaustion = 0.90, alpha for cynicism = 0.78) and their spouse (alpha for exhaustion = 0.80, alpha for cynicism = 0.76).

Psychosomatic health complaints

Psychosomatic health complaints were measured with a Dutch questionnaire on subjective health (VOEG; Vragenlijst Onderzoek Ervaren Gezondheid (Questionnaire on Experienced Health)) developed by Dirken (1969). In this study, the 13-item version was used (Jansen & Sikkel, 1981), explaining 95% of the variance in the 21-item version. All items were scored on a 4-point scale ranging from '1' (seldom or never) to '4' (often). The VOEG consists of items asking whether one suffers from a range of psychosomatic complaints, such as headaches, backache, an upset stomach, fatigue, dizziness, and pain in the chest or heart area. The 13-item VOEG is used by the Dutch census office for monitoring psychosomatic health in the Dutch population. The scales were internally consistent for both the IT workers (alpha = 0.82) and their spouse (alpha = 0.85).

Negative affectivity (NA)

To assess NA, we used the PANAS scale developed by Watson, Clark, and Tellegen

(1988). The PANAS is designed to measure negative affectivity (NA) as well as positive affectivity (PA). The PANAS has been validated among Dutch individuals. However, the latter is not further considered in this study. NA is assessed by descriptors such as 'afraid, hostile, irritable, jittery, and upset'. Participants indicated the extent to which they experienced the particular mood state in general on a 5-point scale ranging from 'very slightly or not at all' to 'extremely'. Extensive research has demonstrated the reliability and validity of this instrument across a wide range of subjects (Watson et al, 1988). An innovation in the present research was not to ask the participants to rate their mood in life in general (as is done traditionally), but to ask participants to rate their mood specifically within the domains of work and home. Participants were asked how they felt in general at work and at home. The scales were internally consistent for both the IT workers (alpha for NA at work = 0.76, alpha for NA at home = 0.77) and their spouse (alpha for NA at work = 0.85, alpha for NA at home = 0.85).

Marital satisfaction

Marital satisfaction is measured by a scale used by Rusbult, Martz, and Agnew (1998). This consists of five questions, such as "I feel satisfied with our relationship" and "My relationship is close to ideal". Respondents answered on a 9-point scale. The scales were translated for use in a Dutch population. The scales were internally consistent for both the IT workers (alpha = 0.93) and their spouse (alpha = 0.93).

Turnover intention

Intention to leave one's job was assessed by one question; "Do you intend to search for a new job in the short run (within a year) outside your company?." Participants indicated their score on a 4-point scale, from '1' (absolutely not) to '4' (definitely). The question was translated for use in a Dutch population.

Results

Data screening

Univariate data screening was carried out prior to undertaking statistical analyses for each of the independent and dependent variables, as recommended by Tabachnick and Fidell (1989). For each multivariate analysis, the assumptions of normality and homoscedasticity were checked and found to be satisfactory.

Preliminary analysis

Table 1 shows the comparisons between the IT professionals and their partners across all the study variables. Significant differences were found for WHI only, with IT professionals reporting higher levels than their partners. Table 2 contains the means and intercorrelations of the study variables. Inspection of the table indicates that significant relationships for the same variable between IT worker and partner was only found for marital satisfaction ($r = 0.30$, $p < 0.01$). Although not statistically significant, a positive relationship was found between worker's and partner's exhaustion ($r = 0.20$). Relationships between IT worker's and partner's stressors and strains indicated the following; HWI (IT worker) and exhaustion (partner, $r = 0.30$, $p < 0.01$), WHI (IT worker) and turnover intention (partner, $r = 0.27$, $p < 0.01$), HWI (IT worker) and turnover intention (partner,

r = .32, p<.01), psychosomatic complaints (IT worker) and turnover intention (partner, r = .27, p<.01). Negative affectivity between the work and home domains were strongly correlated for both the IT worker and spouse (r = .61, p<.01, r = .54, p<.01, respectively), but not as strongly as expected.

Table 1. Means and standard deviations of study variables (N = 78 couples).

Variable	Range	IT workers		Partners		t
		M	SD	M	SD	
WHI	0-3	0.88	0.37	0.64	0.39	3.94**
HWI	0-3	0.23	0.26	0.29	0.31	ns
NA for work	1-5	15.95	4.43	16.84	5.80	ns
NA for home	1-5	18.68	8.57	18.11	6.50	ns
Marital Satisfaction	1-9	7.12	1.66	7.13	1.62	ns
Health (VOEG)	1-4	1.47	0.40	1.59	0.43	ns
Exhaustion (MBI-GS)	0-6	1.88	1.27	1.61	1.03	ns
Cynicism (MBI-GS)	0-6	1.72	1.02	1.43	0.98	ns
Turnover Intention	1-4	1.75	0.82	1.78	0.83	ns

Note: ns = not significant, **p < 0.01.

Crossover

A series of hierarchical regressions were undertaken in which the order of entry of independent variables was controlled. In the first step, gender (as a dummy variable) and individual measures of affectivity were entered. Then the dependent variable was regressed on the WHI/HWI variables of the participant of interest, and finally, in the third step, the dependant variable was regressed on the WHI/HWI variables of the spouse of the dyad. In this way, crossover effects for each couple were assessed by regressing the outcomes on the WHI/HWI variables of their spouses. Good examples of the use of hierarchical regression technique to assess crossover can be found in Morrison and Clements (1997), and Hammer, Allen, and Grigsby (1997). TableS 3 and 4 show the results of these analyses.

Table 3 indicates that negative affectivity at work was a significant predictor for IT workers with regard to exhaustion and cynicism, and NA at home predicted cynicism. With regard to the first prediction, the WHI of IT professionals was a significant predictor of health complaints and exhaustion. Of note is the fact that, even after controlling for gender and NA, WHI accounted for 11% (p < 0.05) of the variance in health complaints and 17% (p < 0.01) of variance in exhaustion levels. Partner WHI (= 0.39, p < 0.01) did predict marital satisfaction and explained 13% of the variance, even after controlling for gender, NA and WHI/HWI. Thus, evidence was found for prediction 2 with regard to crossover of partners' stress to the strains of IT professionals.

Analysis of Table 4 indicates that NA had a less significant impact with regard to predicting outcomes, with only partner NA at work predicting exhaustion and turnover intention. With regard to prediction 1, no direct effects were found for the relationship between WHI/HWI and any of the outcomes. Additionally, with regard to prediction 2,

Table 2. Correlations coefficients (N = 78 couples).

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	WHI (IT worker)																		
2	WHI (partner)	-0.04																	
3	HWI (IT worker)	0.39**	0.22																
4	HWI (partner)	-0.15	0.25*	-0.03															
5	NA in work (IT worker)	0.33**	-0.12	0.31**	-0.06														
6	NA in work (partner)	-0.04	0.30**	-0.12	0.35**	-0.10													
7	NA at home (IT worker)	0.29**	0.03	0.24*	0.05	0.61**	-0.02												
8	NA at home (partner)	0.08	0.10	-0.06	0.26*	-0.10	0.54**	0.00											
9	VOEG (IT worker)	0.31**	-0.12	0.03	-0.08	0.41**	-0.09	0.28*	-0.12										
10	VOEG (partner)	0.17	0.15	0.21	0.25*	0.13	0.27*	0.07	0.38**	0.05									
11	Exhaustion (IT worker)	0.54**	-0.10	0.24*	-0.19	0.53**	0.04	0.39**	0.16	0.56*	0.18								
12	Exhaustion (partner)	0.21	0.48**	0.30**	0.19	0.00	0.43**	-0.00	0.30**	0.45**	0.45**	0.20							
13	Cynicism (IT worker)	0.38**	-0.08	0.12	0.03	0.38**	-0.16	0.45**	0.01	-0.02	-0.02	0.56**	-0.03						
14	Cynicism (partner)	-0.04	-0.01	0.00	0.16	-0.14	0.15	-0.01	0.20	0.16	0.16	0.03	0.28*	0.04					
15	Turnover Intention (IT worker)	-0.08	0.10	0.03	0.22	0.35**	0.13	0.28*	-0.02	-0.07	-0.07	0.10	0.03	0.33**	0.10				
16	Turnover Intention (partner)	0.27*	0.14	0.32**	0.12	0.13	0.14	-0.01	0.11	0.27*	0.27*	0.13	0.23*	0.05	0.37*	0.02			
17	Marital Satisfaction (IT worker)	-0.09	-0.12	0.02	0.02	0.08	-0.13	-0.24*	-0.20	0.07	-0.02	-0.12	-0.12	-0.16	-0.17	0.11	-0.01		
18	Marital Satisfaction (partner)	0.01	-0.09	-0.08	-0.14	0.19	-0.06	-0.02	-0.19	0.05	0.14	0.02	-0.13	-0.07	-0.24*	0.14	-0.06	0.30**	

Note: **p < 0.01, *p < 0.05

Table 3. Crossover from partner to IT worker (N = 78 couples).

	Health Complaints β	Marital Satisfaction β	Exhaustion β	Cynicism β	Turnover Intentions β
IT NA at work	0.23	0.07	0.37**	0.28**	0.26
IT NA at home	0.02	-0.26	0.06	0.63**	-0.13
Gender	0.16	0.06	0.15	0.09	0.06
Partner NA at work	0.20	-0.29	0.28	-0.04	0.22
Partner NA at home	0.01	0.09	0.04	0.10	-0.09
Step 1 R^2(R^2adj)	0.16 (0.09)	0.15(0.07)	0.27(0.31)	0.28(0.22)	0.05 (-0.03)
Δ R^2	0.16	0.15	0.27**	0.28**	0.05
F change	20.23	10.84	40.29**	40.55**	0.59
WHI of IT worker	0.32*	-0.07	0.41**	0.14	-0.14
HWI of IT worker	0.02	0.12	-0.04	-0.22	0.01
Step 2 R^2(R^2adj)	0.28 (0.19)	0.16 (0.05)	0.44(0.37)	0.34(0.25)	0.07 (0.05)
Δ R^2	0.11*	0.01	0.17**	0.05	0.02
F change	40.40*	0.44	80.28**	20.12	0.48
Partner WHI	-0.24	-0.06	-0.22	-0.21	-0.09
Partner HWI	-0.09	-0.39**	-0.08	-0.21	0.16
Step 3 R^2(R^2adj)	0.32(0.21)	0.29(0.16)	0.48(0.39)	0.37(0.26)	0.09 (0.06)
Δ R^2	0.05	0.13*	0.04	0.04	0.02
F change	10.89	40.62*	20.10	10.49	0.70

Note: **p < 0.01, *p < 0.05

no crossover effects were found.

In sum, limited support was found for prediction 1 (spillover), regarding IT professionals WHI predicting exhaustion, and prediction 2 (crossover), regarding the stress (HWI) of the partner predicting the strain (marital satisfaction) of the IT professional.

Additional analysis

It has been shown that strain in one partner can produce an empathetic reaction in the other

Table 4. Crossover from IT professional to partner (N = 78 couples).

	Dependant Variables of Partner				
	Health Complaints	Marital Satisfaction	Exhaustion MBI-GS	Cynicism MBI-GS	Turnover Intentions
	β	β	β	β	β β
Partner NA at work	0.28	0.15	0.45**	0.11	0.43*
Partner NA at home	0.00	-0.13	0.04	0.07	-0.24
Gender	-0.06	-0.40**	-0.12	-0.12	-0.17
IT NA at work	0.07	0.20	0.10	-0.12	-0.12
IT NA at home	-0.09	0.02	-0.20	0.10	0.05
Step 1 R^2(R^2adj)	0.16 (0.09)	0.16 (0.08)	0.33 (0.27)	0.09 (0.01)	0.15 (0.07)
Δ R^2	0.16	0.16	0.33**	0.09	0.15
F change	20.13	20.16	50.63**	10.09	10.98
Partner WHI	0.06	-0.19	0.23	-0.28	-0.19
Partner HWI	0.15	0.14	-0.09	0.05	0.02
Step 2 R^2(R^2adj)	0.18 (0.07)	0.20 (0.10)	0.38 (0.30)	0.08 (0.00)	0.17 (0.07)
Δ R^2	0.02	0.04	0.05	0.05	0.03
F change	0.60	10.54	20.28	10.43	0.96
WHI of IT worker	0.17	-0.05	0.09	-0.04	0.19
HWI of IT worker	0.20	-0.19	0.26	0.14	0.20
Step 3 R^2(R^2adj)	0.24 (0.10)	0.23 (0.10)	0.44 (0.34)	0.14 (0.00)	0.24 (0.11)
Δ R^2	0.06	0.03	0.05	0.01	0.06
F change	10.95	0.96	20.52	0.32	20.29

Note:**p < 0.01, *p < 0.05

that increases his or her level of strain (Eckenrode & Gore, 1981; Riley & Eckenrode, 1986). In order to assess the relation between the strain of one person and the strain of their spouse, one additional analysis was computed whereby the partner's dependant variable was entered in step 3 of the regression analysis. Only marital satisfaction was a significant predictor ($\chi = 0.27$, $p < 0.05$), indicating that the marital satisfaction of one partner in the dyad was predictive of the other one.

Discussion

The central aim of the present study was the identification of crossover in a dyad where both partners worked. The present study is innovative in the literature on the transference of stress, in that only one other study (Morrison & Clements, 1997) has examined the relationship between partners' stress and spouses' strain, while controlling for the effects of negative affectivity and within-individual stress.

With regard to the first prediction, concerning the within-individual spillover of stress to strain, the results are of significant note. For IT professionals, WHI remained a significant predictor of exhaustion after controlling for gender and NA. This correlates with related research that has found a consistent relationship between WHI and exhaustion (Allen et al., 2000). Indeed, Allen et al. (2000), in their exhaustive review of the WHI literature on outcomes, suggest that research should investigate if there are any underlying dispositional variables that explain the relationship between WHI and affective variables (such as job or life satisfaction). For IT professionals, NA was important with regard to exhaustion and cynicism. This result is in agreement with findings by Burke, Brief, and George (1993) who found that individuals high in NA tended to report higher levels of WHI and lower levels of job and life satisfaction. Of particular note, for IT professionals, is the fact that NA at home was strongly associated with cynicism. However, the results of the present study suggest that the influence of NA was not ubiquitous, as WHI still explained significant amounts of variance in exhaustion, even after controlling for NA. Empirically, this is an interesting demonstration of the way in which NA can 'suck up' the variance of only specific aspects of burnout.

In terms of future research, tapping NA in different domains will help to provide us with a more dynamic picture of affective processes. Considerable research evidence suggests that negative affectivity is stable across both time and place, but the results of the present research suggest that NA may be contextual across the domains of work and home. While the correlations were both strong and significant, the magnitude of the association was not so strong as to suggest that NA was stable across both domains. Future research should distinguish between these domains, in terms of affectivity, in an effort to further understand the processes that cause NA to be contextualised.

Limited support was found for the second prediction. Consistent with previous studies (e.g., Jones & Fletcher, 1993; Morrison & Clements, 1997) support was found for the crossover of stress from one partner to the strains of their spouse. The finding that the partner HWI affects the martial satisfaction of their respective IT professional suggests that as partners experience interference from the home domain to the work domain, they 'pass' on this stress to their spouses. In terms of the conceptualisation of a causal path, this probably suggests that when partners experience stress in the form of home interfering with work (i.e., they are called upon to share a heavier degree of

burden in the home domain, while still trying to accommodate the level of demands at work), such interference leads to increased marital dissatisfaction for their spouse. This result is consistent with Pearlin and Turner's (1987) findings that spouses were sensitive to the stress of their partner (even when their partner did not refer to it). Given that the majority of partners in this study were women, the result is also consistent with the idea that women are more susceptible than men to the impact of stressors affecting them in their relationship (Haviland & Malatesta, 1981; Kessler, 1979; Kessler & McLeod, 1984). Research concerning gender differences in crossover is mixed, with some studies finding bi-directional crossover effects of similar magnitude from husbands to wives and from wives to husbands (Barnett, Raudenbush, Brennam, Pleck, & Marshall, 1995; Wetsman & Etzion, 1995; Westman & Vinokur, 1998) and other studies indicating that crossover from women to men is stronger (Parasuraman et al., 1992) or vice-versa (Jones & Fletcher, 1993).

The fact that IT professionals' level of WHI indicated significant associations with exhaustion further suggests that a heavier burden from work has a 'knock on' effect in the home domain, and compounds the HWI of their partner. Additional analysis, whereby the dependent variables of the spouse were entered into the last step of the regression model, indicated crossover of marital satisfaction. Taken together, these three results suggest a dynamic picture of spillover and crossover, with work interfering with home for the IT professional, which in turn may increase the home burden for their spouse (and thus HWI), and all adding up to decreased martial satisfaction.

Potential crossover mechanisms

At the level of crossover mechanism, the literature on contagion (Hatfield, Cacioppo, & Rapson, 1994) provides a nice way of conceptualising how the stressor of one partner can crossover to their spouse. Indeed, Bakker and Schaufeli (2000), in a study of Dutch high school teachers, found that the positive or healthy effects of interactions with colleagues turned into a negative or unhealthy effect when teachers talked frequently with burnout colleagues. It is not unreasonable to imagine that interactions within the personal realm of a couple are even more intense and frequent. It is possible to conceptualise that the process of stress crossing over from one partner to another is similar to the processes involved in emotional contagion. Emotional contagion is defined as "the tendency to automatically mimic and synchronise facial expressions, vocalisations, postures and movements with those of another person and consequently, to converge emotionally" (Hatfield et al., 1994, p. 5). In terms of crossover via partners, contagion (or crossover) may occur via a conscious cognitive process by 'tuning in' to the emotions of others. More specifically, such tuning in can be thought of as empathy or perspective taking, which is the "spontaneous tendency of a person to adopt the psychological perspective of other people- to entertain the point of view of others" (Davis, 1983, p. 169). Thus contagion probably represents the mechanism by which the common stressors approach of Westman and Vinkur (1998) can best be understood. Taken together, both emotional contagion and empathy provide the conceptual framework by which we can understand the mechanisms of crossover in future studies. Such a process can be predicted to be more intense when the relationship concerns a dyad that shares many common stressors.

Limitations

The lack of information regarding the total sample made it impossible to calculate a response rate. Such an issue raises questions concerning the characteristics of the individuals who did not respond to the survey. This could suggest that those with the greatest stressors did not respond because they experienced too many demands (Hochschild, 1989). Our response rate was probably influenced by the fact that privacy considerations meant that the IT professional mediated our contact with the spouse of the IT professional. Therefore, the IT professional could choose not to respond (for both him/her and their spouse). Unfortunately, we have no way to verify this empirically.

Reliance on data that is self-report, subjective, and cross-sectional carries long recognised limitations. Future research should use methods such as experience sampling (Williams & Alliger, 1994) to better understand the dynamics of WHI/HWI and crossover. Such an approach could help to address the point raised by Westman (2001) as to whether crossover might lead people to redefine their roles at work and at home, thereby altering their perceived role processes.

It must be acknowledged that crossover, in the present study, is somewhat narrowly defined as stress contagion between heterosexual spouses. The authors acknowledge that there are other forms of (or conceptualisations of) crossover in the literature – for example, Julian Barling's work on the impact of parents' work characteristics on children's well-being (Barling & Mendelson, 1999).

A big advantage of crossover research is that it is based on an observation of two partners, and as such confounding can be avoided by controlling for each partner's stress. The present study advances the knowledge in the field by demonstrating how stressors and strains experienced by one partner can be associated with strain in their spouse. The most important conclusion of the study may be that interference from home to work is more than a problem for the individual concerned; it can also effect one's partner/spouse. Additionally, such a result for HWI is in contrast to the idea that WHI is the most potent aspect of the work-home nexus.

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