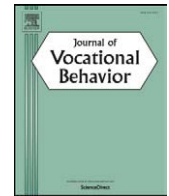




Contents lists available at ScienceDirect

Journal of Vocational Behavior

journal homepage: www.elsevier.com/locate/jvb

Is family-to-work interference related to co-workers' work outcomes?

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ARTICLE INFO

Article history:
Received 25 May 2010
Available online xxxx

Keywords:
Burnout
Crossover
Employee engagement
Sickness absence
Turnover intention
Work–family conflict

ABSTRACT

Previous studies have convincingly shown that employees' family lives can affect their work outcomes. We investigate whether family-to-work interference (FWI) experienced by the employee also affects the work outcomes of a co-worker. We predict that the employee's FWI has an effect on the co-worker's outcomes through the crossover of positive and negative work attitudes. Using a sample of 1430 co-worker dyads, we found that the employee's FWI had a positive relationship with the co-worker's sickness absence through the crossover of feelings of burnout. Similarly, employee FWI was positively related to co-worker turnover intention through the crossover of (reduced) work engagement. The results show that family matters at work, affecting not only employee but also co-worker work outcomes.

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Introduction

A majority of today's workforce combines work with a substantial number of tasks at home. Juggling dual roles often results in feelings of stress and time pressure, which may lead to family life interfering with work (Greenhaus & Beutell, 1985). Several studies have examined the consequences of family-to-work interference for the work and the family domain (for an overview, see Eby et al., 2005). Those studies show that employees experiencing high levels of family–work interference report more feelings of stress at work, more health complaints and depression, reduced job satisfaction and poorer job performance (e.g. Adams & Jex, 1999).

While knowledge on the consequences of family-to-work interference for the *employee's* work outcomes accumulates, the consequences for *co-workers'* work outcomes have hardly been studied yet. Today's work is often organized in a team-based form, whereby co-workers depend on each other for the completion of their tasks. Teamwork entails frequent interaction between co-workers, such as advising or motivating each other (Mathieu et al., 2008). In work settings where co-workers closely cooperate, it is possible that one co-worker is impeded in doing his or her job when the family life of the other co-worker interferes at work (Ten Brummelhuis, Van der Lippe, & Kluwer, in press). The first question addressed in this study therefore is *whether* the family-to-work interference (FWI) experienced by the employee affects a co-worker's work outcomes (sickness absence and turnover intention).

Secondly, we examine in more detail *why* employee FWI affects co-worker work outcomes. The family-work literature suggests that family matters may conflict with work due to a shortage in time and energy, resulting in feelings of burnout at work (Ten Brummelhuis et al., 2008; Greenhaus & Beutell, 1985). Furthermore, when family life interferes with work, the employee is distracted at work, which may result in reduced work engagement (Campbell et al., 1994; Chapman et al., 1994; Kinnunen & Mauno, 1998). Feelings of burnout (exhaustion, cynicism and reduced efficacy) and reduced engagement (vigor, dedication and absorption) at work may, in turn, cross over between co-workers (Bakker & Xanthopoulou, 2009). Previous crossover studies confirm that burnout and engagement are transferred from the team to individual team members (Bakker et al., 2006). In the current study, we examine in detail whether such crossover effects occur between dyads of co-workers. More specifically, we

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investigate whether any effects of employee FWI on a co-worker's work outcomes are due to the crossover of job burnout and (reduced) engagement.

Theoretical framework

Family-to-work interference

The most commonly used theory in treating the relationship between family and work is the conflict approach (Greenhaus & Beutell, 1985). The conflict approach suggests that employees have a limited amount of time and energy that they need to allocate over family and work tasks (Eby et al., 2005; Greenhaus & Beutell, 1985). Time and energy spent on family tasks cannot be spent on work and vice versa. Employees experience conflict when their work and family roles are mutually incompatible in some respect. Greenhaus and Beutell (1985) distinguished between three types of conflict, specifically time-based conflict (incompatible time demands between work and family), strain-based conflict (spillover of stress from one domain to the other), and behavioral-based conflict (when role behavior in one domain is incompatible with role behavior in the other domain).

The three types of FWI as suggested by Greenhaus and Beutell (1985) help to further clarify the disadvantageous effects of FWI for work. First, strain-based FWI implies that the employee experiences stress at work due to family responsibilities. An example is that employees lose energy at work by ruminating about family matters (Peeters et al., 2005). Energy drain in turn, results in exhaustion, diminished vigor and poorer accomplishment at work. The employee can also withdraw from work (e.g. low job dedication and increased cynicism) when he or she permanently feels that he or she lacks energy to deal with work and family demands (Peeters et al., 2005). Second, time-based FWI, such as felt time pressure or being late for appointments due to family matters, offers an explanation for reduced professional efficacy. The employee lacks time or is even absent from work, hindering optimal performance. Moreover, being late at work or leaving work early indicates diminished dedication for work. Third, behavioral aspects of FWI, such as often taking breaks in order to respond to family duties (Chapman et al., 1994) or frequently starting informal conversations impede the employee from being fully dedicated to and absorbed in work tasks, and reduces efficient task performance. On the basis of these insights we suggest that FWI negatively affects work as it increases feelings of job burnout, characterized by feelings of exhaustion, negative attitudes (cynicism) and reduced professional efficacy, whereas FWI diminishes job engagement, characterized by vigor, dedication and absorption (Schaufeli et al., 2002).

Several studies on the consequences of FWI for employee outcomes support this idea. For example, Peeters et al. (2005) found that employees who experience higher levels of family-to-work interference report more feelings of exhaustion and cynicism. Other studies indicate that family-to-work interference is positively related to job exhaustion, feelings of depression and anxiety (Kinnunen & Mauno, 1998; Van Steenbergen et al., 2007). Furthermore, FWI has been associated with diminished concentration at work, job satisfaction, perceived career success and performance, as well as increased turnover intention (Kelloway et al., 1999; Parasuraman & Simmers, 2001; Peluchette, 1993). In line with these findings, we assume that employees experience more burnout and less engagement at work when their family life interferes with their work.

Burnout, engagement and work outcomes

Researchers generally agree that work-related burnout has a negative impact on work outcomes, whereas work engagement enhances work outcomes (Bakker et al., 2003; Taris, 2006). For example, Cropanzano et al. (2003) found that emotionally exhausted employees had lower supervisor assessments of organizational citizenship behavior and job performance. In a study among flight attendants, Xanthopoulou, Bakker, Demerouti, and Schaufeli (2008) found that job engagement helped employees to perform better. In a further specification of which work outcomes are particularly affected by job burnout and job engagement, several authors have suggested that burnout is primarily related to (reduced) in-role performance, whereas engagement mainly predicts extra-role performance (Bakker et al., 2004). The theoretical argumentation for this assertion is rooted in the Job Demands–Resources (JD–R) model (Demerouti et al., 2001). The JD–R model distinguishes between two separate processes. One process represents the health impairment process, predicting that high job demands drain the employee's energy, resulting in burnout and consequently impaired health. The other process is a motivational process, linking job resources to enhanced extra-role performance such as helping behavior and organizational commitment, as resources boost the employee's motivation, dedication and vigor at work (Bakker et al., 2003). Several empirical studies indeed show that burnout is related to in-role performance measures such as job performance and sickness absence, whereas engagement is related to increased OCB and reduced turnover intention (Bakker et al., 2004; Bakker et al., 2003). Accordingly, we assume that work-related burnout is positively related to sickness absence, while work engagement decreases turnover intention.

Crossover of burnout and engagement

The process whereby emotional states are transferred from one person to another is also known as crossover (Westman, 2001). Several possible mechanisms explaining crossover effects between close individuals are commonly distinguished in the crossover literature (Westman, 2001). First, crossover can occur when a co-worker models, more or less unconsciously, the employee's work attitudes and work behavior (Bernieri et al., 1988). For example, a co-worker who cooperates with an employee who is very enthusiastic at work, or is totally absorbed in his or her tasks may imitate the vigor and absorption of the employee. Second, persons in a close relationship imagine the situation of the other and how they would feel, and in doing so, may experience the

other person's feelings (Bandura, 1969; Westman, 2001). Co-workers working together on a regular basis know each other well and are able to perceive each other's mood. As an empathic reaction to an employee who feels exhausted and cynical, the co-worker may then also have more pessimistic feelings. Third, negative emotions derived from family life may lead the employee to express negative attitudes at work. For example, employees who feel depressed because they constantly feel that their work and family roles are incompatible might express more cynical jokes at work, thereby inducing a more pessimistic mood in their peers (Bakker et al., 2006). Finally, work–family interference may induce counterproductive behavior at work that also affects a co-worker. For example, an employee experiencing stress at home may criticize a co-worker, thereby increasing stress in the co-worker (Westman & Vinokur, 1998). Also, an employee who performs worse at work as he or she ruminates about family issues may hinder co-workers in fulfilling their tasks, or even burden them with additional workload. Finally, discussing problems regarding balancing work and family with colleagues, may keep colleagues from doing their job, whereby their efficacy diminishes and stress increases.

Empirical studies have widely confirmed the crossover of both positive and negative feelings between spouses (for an overview see, Westman, 2001). Westman and Etzion (1995), for instance, found a positive bidirectional relationship between the partners' feelings of burnout, after controlling for job demands and job resources. In a study on working couples, Bakker et al. (2005) found that feelings of burnout and work engagement cross over between husbands and wives. In the context of work, Bakker et al. (2006) found positive relationships between team level burnout and engagement and the burnout and engagement experienced by individual team members. Finally, we mention one study that reported the crossover of daily work engagement between dyads of co-workers (Bakker & Xanthopoulou, 2009).

In the present study, we investigate whether feelings of burnout and (diminished) engagement due to FWI cross over between co-workers. We will examine whether the crossover of burnout and engagement offers an explanation for the relationship between the employee's FWI and the co-worker's work outcomes. We predict that an employee experiencing more FWI has more feelings of burnout. Due to crossover, feelings of burnout in the co-worker will also be enhanced, enhancing the co-worker's sickness absence. In addition, an employee experiencing FWI will be less engaged at work, indicated by less vigor, dedication and absorption. As these work attitudes cross over to the co-worker, the co-worker's turnover intention will increase. This leads to the following set of hypotheses:

Hypothesis 1. Employee FWI will be positively related to co-worker sickness absence through the crossover of feelings of burnout.

Hypothesis 2. Employee FWI will be positively related to co-worker turnover intention through the crossover of (reduced) feelings of engagement.

Method

Sample and procedure

This study was part of a survey on work conditions and occupational health among all employees (both civilian and military) working for the Royal Dutch Constabulary Officers organization (in Dutch: Koninklijke Marechaussee). This is a Dutch police organization with a military status; it includes more than 5000 employees in total. The organizational setting is ideally for this study, as the Constabulary Officers work in teams, whereby frequent interaction is guaranteed as (almost) all employees work full time (96.5%). By means of qualitative interviews, the names of all work units were identified and subsequently included in a paper-and-pencil questionnaire. In this way all respondents could identify their work unit. Questionnaires were sent to the private addresses of all participants, with a prepaid return envelope. Anonymity was guaranteed, and an information campaign supported the study. The response was 3042 questionnaires (response rate = 61%). We deleted participants with missing values on the research variables. Next, we randomly restructured the data in dyads of employees belonging to the same work unit. This strategy resulted in a dataset of 2860 constabulary officers (91% men and 9% women) structured in 1430 dyads of employees. Each dyad consisted of an employee ($n = 1430$) and a co-worker ($n = 1430$). Mean age of the participants was 36.2 years ($SD = 9.5$). Mean organizational tenure was 14 years ($SD = 10.3$), and participants completed on average 9.4 years of education ($SD = 1.6$). Additional analyses revealed that there were no differences between the final sample and the sample that responded in terms of gender, age, educational level and organizational tenure.

Measures

Family-to-work interference

Family-to-work interference was measured using the Survey Work Home Interference Nijmegen (SWING; Geurts et al., 2005). Many items in the FWI scale are congruent with the scales of Netemeyer et al. (1996). Two example items of the 3-item scale are "How often do you find it difficult to concentrate at work because you worry about family matters?", "How often do you arrive late at work because of domestic obligations?" (Cronbach's $\alpha = .70$). All items were scored on a 5-point frequency scale ranging from 1 (never) to 5 (always).

Burnout

Burnout was assessed using the Maslach Burnout Inventory—General Survey (Schaufeli et al., 1996), which consist of the subscales Exhaustion, Cynicism, and (reduced) Professional Efficacy. Exhaustion is measured with five items, including “I feel burned-out from my work” (Cronbach's $\alpha = .86$). Cynicism reflects indifference or a distant attitude toward work and is also measured with five items, such as “I have become more cynical about whether my work contributes anything” (Cronbach's $\alpha = .81$). Finally, Professional Efficacy encompasses both social and nonsocial accomplishments at work and is assessed with six items. An example is, “I feel I am making an effective contribution to what this organization does” (Cronbach's $\alpha = .71$). The answer categories ranged from 0 (never) to 6 (every day).

Work engagement

Work engagement was assessed with the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002). The instrument consists of three subscales: Vigor, Dedication and Absorption. An exemplary item of the 6-item Vigor scale is “At my job, I feel bursting with energy” (Cronbach's $\alpha = .86$). An example of the 5-item Dedication scale is “My job inspires me” (Cronbach's $\alpha = .93$). An example item of the 6-item Absorption scale is “Time flies when I am working” (Cronbach's $\alpha = .82$). The items of all three engagement scales used a 7-point response format (0 = never, 6 = every day).

Turnover intention

Turnover intention refers to the intention of an employee to quit his or her current position and switch to another position or organization. We used the turnover intention scale developed by Van Veldhoven and Meijman (1994), including the following example items: “Sometimes I think about changing jobs” and “I consider applying for another position within my organization”, (Cronbach's $\alpha = .76$). Answer categories ranged from 1 (totally disagree) to 5 (totally agree).

Sickness absence

Sickness absence was measured as the number of days an employee was absent due to illness. Each respondent reported the total number of days during which he or she was absent due to illness during a 12-month period, regardless of the number of times he or she was absent. The mean number of days that employees called in sick was 7.30 ($SD = 13.31$). Since the sickness absence measure was positively skewed (skewness = 2.32, $SE = .07$; kurtosis = 5.40, $SE = .13$), we conducted a log transformation. This resulted in an adequate normality distribution (skewness = .64, $SE = .07$; kurtosis = .14, $SE = .13$).

Controls

We controlled for the demographic variables age and education. Age was a continuous variable and education was measured on a 6-point ordinal scale ranging from 1 (vocational education) to 6 (university degree). In addition, we controlled for job demands, job resources and team climate, as those contextual factors could explain burnout and engagement experienced by the employee and the co-worker. Physical job demands were measured with a scale developed by Bakker et al. (2003). Participants were asked to indicate how demanding they thought each of seven situations was (1 = barely demanding, 5 = extremely demanding). An example item is as follows: “Working in a bending position,” (Cronbach's $\alpha = .80$). The measure of emotional demands was based on a scale developed by Van Veldhoven and Meijman (1994) and included five items. An example item is as follows: “Do you face emotionally charged situations in your work?” (Cronbach's $\alpha = .71$). Job autonomy was assessed with a three-item scale, based on Karasek's (1985) job content instrument. A sample item is, “I can decide myself how I execute my work,” (Cronbach's $\alpha = .82$). Supervisor support was assessed with seven items, using a Dutch adaptation Graen and Uhl-Bien (1991) Leader–Member Exchange scale (e.g., “My supervisor uses his/her influence to help me solve my problems at work,” (Cronbach's $\alpha = .94$). Social support in the team was measured with the three-item scale developed by Bakker et al. (2003). An example item is as follows: “Can you ask your colleagues for help if necessary?” (Cronbach's $\alpha = .79$). Team conflict was measured with a three-item scale inspired by Chang and Bordia's (2001) work on group cohesion. An example item is, “In my team, the discipline and work norms suffer from a lack of team spirit”, (Cronbach's $\alpha = .79$).

Strategy of analysis

The hypotheses were tested by conducting structural equation modeling (SEM) analysis using AMOS (Arbuckle, 2006). SEM is a preferable data analysis strategy for mediational models involving latent constructs (Baron & Kenny, 1986). We used the goodness-of-fit index (GFI), the root mean square error of approximation (RMSEA), the comparative-fit-index (CFI), and the Tucker–Lewis Index (TLI) to examine the fit of the model to the data. In general, models with fit indices of $>.90$ and an RMSEA of $<.08$ indicate a reasonable fit between the model and the data (Browne & Cudeck, 1989).

As a single indicator operationalized sickness absence, we corrected for random measurement error by setting the random error variance of turnover intention equal to the product of its variance and the quantity one minus its internal consistency (Jöreskog & Sörbom, 1993). We adopted a reliability of .70, the lowest value of the reliability range (.70–.91) for self evaluation measures reported by previous review studies (Johns, 1994).

Bootstrapping was used to test whether the significant pathways running between employee FWI and the co-worker's work outcomes via the crossover of burnout and engagement do in fact represent mediated relationships. Bootstrapping is a statistical resampling method that estimates the parameters of a model and their standard errors strictly from the sample (Preacher & Hayes, 2008). We extracted new samples (with replacement) from our sample 2000 times and calculated all direct and indirect estimates

of the hypothesized model. Bootstrapping computes more accurate confidence intervals (CI) of indirect effects ($x \rightarrow m \rightarrow y$) than the more commonly used methods, such as the causal steps strategy (Baron & Kenny, 1986) and the Sobel test, as it does not impose the assumption that the sampling distribution is normal (Preacher & Hayes, 2008). This is especially relevant for indirect effects, as these have distributions that are skewed away from zero (Shrout & Bolger, 2002). The null hypothesis, which states that x does not have an indirect effect on y via m , is rejected when the entire confidence interval lies above or below zero.

Results

Descriptive statistics

Table 1 shows the means, standard deviations and correlations between the model variables. The correlations do not indicate problems of multicollinearity. The measurement model included all scale variables of our hypothesized model with scale items tapping the latent variables: FWI, burnout (three dimensions), engagement (three dimensions) and turnover intention. Note that since “sickness absence” was not a scale variable, but a 1-item measure, this variable was not included in the measurement model. The measurement model showed a good fit to the data, $\chi^2(632) = 5919.99$, RMSEA = .053, GFI = .90, CFI = .92, TLI = .91. All items had significant loadings on the intended factors ($p < .001$).

Crossover of specific dimensions

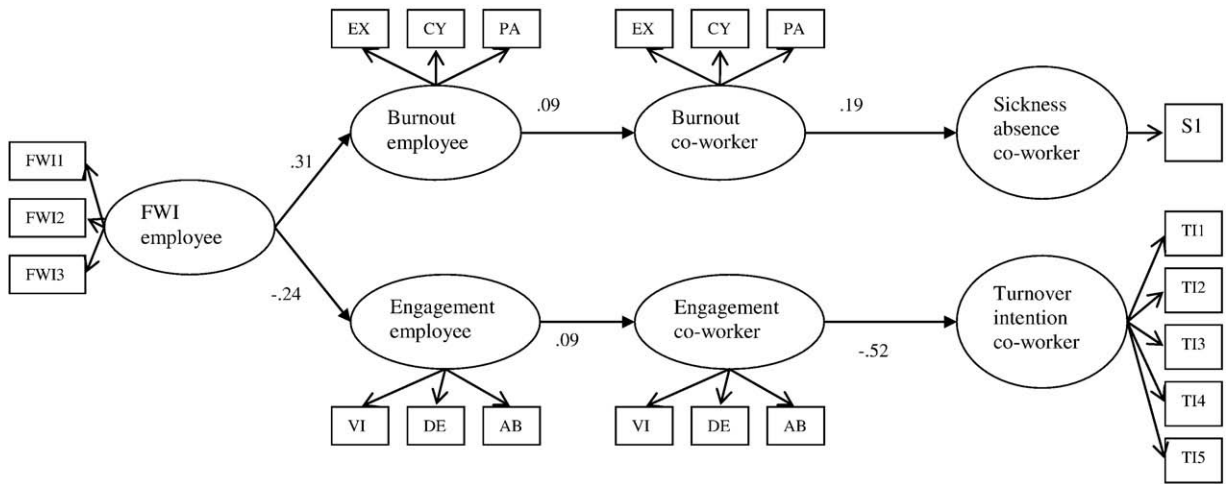
We checked which dimensions of burnout and engagement crossed over between the employee and the co-worker. A model including the employee's burnout sub-dimensions and the co-worker's burnout sub-dimensions showed that exhaustion ($\beta = .06$, $p < .05$), cynicism ($\beta = .09$, $p = .01$), and professional efficacy ($\beta = .12$, $p < .001$) significantly crossed over from the employee to the co-worker. Similarly, vigor ($\beta = .07$, $p < .05$), dedication ($\beta = .10$, $p < .001$), and absorption ($\beta = .09$, $p < .001$), the sub-dimensions of engagement, significantly crossed over, as shown by a model including the employee's and the co-worker's engagement sub-dimensions. The models include correlations among the three error terms of the burnout sub-dimensions, and among the three error terms of the engagement sub-dimensions and each have a good fit (burnout: $\chi^2(396) = 1837.06$ $p < .001$, GFI = .92, RMSEA = .051, CFI = .91, TLI = .91; engagement: $\chi^2(396) = 2100.50$ $p < .001$, GFI = .90, RMSEA = .058, CFI = .94, TLI = .94).

Table 1
Means, standard deviations and correlations of model variables.

	Mean	Std.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. FWI employee	1.42	.52														
2. Exhaustion employee	1.53	1.12	.36**													
3. Cynicism employee	1.86	1.29	.29**	.39**												
4. Efficacy employee	4.23	.86	-.19**	-.20**	-.52**											
5. Exhaustion co-worker	1.59	1.12	-.04	.03	-.02	.04										
6. Cynicism co-worker	1.86	1.25	-.01	-.04	.06*	-.04	.44**									
7. Efficacy co-worker	4.23	.84	.03	.05	-.06*	.07*	-.23**	-.49**								
8. Vigor employee	4.03	1.09	-.25**	-.34**	-.57**	.68**	.03	.00	.02							
9. Dedication employee	3.63	1.40	-.21**	-.21**	-.71**	.72**	.05*	-.06*	.10*	.77**						
10. Absorption employee	3.32	1.17	-.15**	-.12**	-.54**	.62**	.04	-.04	.07*	.76**	.82**					
11. Vigor co-worker	4.07	1.06	.04	.03	-.05	.02	-.34**	-.53**	.68**	.03	.07*	.05				
12. Dedication co-worker	3.67	1.33	.02	.03	-.08**	.06*	-.21**	-.68**	.68**	.05	.11**	.08*	.78**			
13. Absorption co-worker	3.38	1.16	.02	.04	-.05*	.03	-.10**	-.49**	.57**	.04	.09**	.07*	.75**	.83**		
14. Turnover intention co-worker	2.80	.90	-.01	-.04	.03	.01	.21**	.51**	-.31**	.02	-.02	-.01	-.33**	-.50**	-.38**	
15. Sickness absence co-worker ^a	1.34	1.19	.02	.03	.02	-.01	.14**	.13**	-.12**	.00	-.01	.01	-.20**	-.13**	-.13**	.10**

** $p < .01$, * $p < .05$. $N = 1430$.

^a This is the log transformed variable.



All pathways are significant at the $p < .05$ level. Entries represent standardized regression weights. $N = 1430$ dyads.

Fig. 1. Effects of employee's FWI on co-worker's work outcomes via crossover of burnout and engagement.

Cynicism, efficacy, dedication, and absorption were particularly susceptible for crossover between co-workers, whereas the crossover of exhaustion and vigor was relatively weak.

Hypothesis testing

Fig. 1 depicts the structural model. This model included pathways from employee FWI to co-worker sickness absence via employee burnout and co-worker burnout (Hypothesis 1), as well as pathways from employee FWI to co-worker turnover intention via employee engagement and co-worker engagement (Hypothesis 2). The two latent variables representing burnout and engagement each had three indicators (the sub-dimensions). All hypothesized pathways were significant and the model showed a good fit to the data ($\chi^2(170) = 1537.66$, $GFI = .90$, $RMSEA = .075$, $CFI = .92$, $TLI = .90$). We also tested a model including the control variables. As none of the control variables affected the relationships under study, these variables were excluded from the model. This strategy was chosen to create a more parsimonious model, after checking any confounding effects of the control variables.

Although the relationship between employee burnout and co-worker burnout can best be interpreted as statistically weak ($\beta = .09$, $p < .05$), the bootstrapping results presented in Table 2 confirm that the relationship between employee FWI and co-worker burnout is mediated by employee burnout. Also, co-worker burnout significantly mediates the relationship between employee burnout and co-worker sickness absence. Moreover, the double indirect effect of employee FWI on co-worker sickness absence via employee burnout and co-worker burnout is significant. The results thus support Hypothesis 1 that FWI experienced by an employee is positively related to his or her feelings of burnout. These feelings of burnout cross over to the co-worker, contributing to the co-worker's sickness absence.

In a similar vein, Fig. 1 shows that employee FWI is related to co-worker turnover intention via the level of engagement experienced by the employee and the co-worker. As predicted, employee FWI was negatively related to employee engagement. We found a significant crossover effect of engagement between the employee and the co-worker ($\beta = .09$, $p < .05$). Co-worker engagement was in turn significantly, negatively related to co-worker turnover intention. Again, the bootstrapping results (Table 2) confirmed that the indirect pathways were significant. Hypothesis 2 was thus supported: the higher employee FWI, the lower employee engagement. Employee engagement was in turn, negatively related to co-worker turnover intention via the crossover of the level of felt engagement.

Table 2
Indirect pathways using bootstrapping.

	Bootstrapping		BC 95% CI		p
	Est	S.E.	Lower	Upper	
<i>Indirect effect $x \rightarrow m \rightarrow y$</i>					
$FWI_{em} \rightarrow burnout_{em} \rightarrow burnout_{co}$	.034	.017	.003	.071	.027
$burnout_{em} \rightarrow burnout_{co} \rightarrow sickness\ absence_{co}$	.012	.006	.001	.027	.020
$FWI_{em} \rightarrow burnout_{em} \rightarrow burnout_{co} \rightarrow sickness\ absence_{co}$	.006	.004	.001	.015	.019
$FWI_{em} \rightarrow engagement_{em} \rightarrow engagement_{co}$	-.035	.012	-.061	-.012	.003
$engagement_{em} \rightarrow engagement_{co} \rightarrow turnover\ intention_{co}$	-.013	.005	-.025	-.004	.002
$FWI_{em} \rightarrow engagement_{em} \rightarrow engagement_{co} \rightarrow turnover\ intention_{co}$	.005	.002	.002	.010	.002

Note: BC, bias corrected; CI, confidence interval. Entries represent unstandardized coefficients. $N = 1430$. em refers to employee, co refers to co-worker.

Discussion

The aim of this study was twofold. First, we questioned whether a co-worker's work outcomes are influenced by FWI experienced by an employee. Our results expand previous studies on the relationship between FWI and work outcomes within one employee (e.g., Bruck et al., 2002) by showing that the employee's FWI also affects the work outcomes of a co-worker. When the employee had higher levels of FWI, we found that the co-worker's intention to change jobs was higher. Also, a co-worker took more days of sick leave when the employee experienced more FWI.

Second, we examined why employee FWI affects the work outcomes of a cooperating colleague. Crossover theory (Westman, 2001) was helpful in explaining these effects. Due to the crossover of both negative and positive work attitudes (i.e. work-related burnout and engagement), the family matters of one colleague affected the work outcomes of the other colleague. Our results are substantial given the fact that each employee–co-worker dyad was embedded in a larger team. Even within randomly chosen dyads, we found the crossover of job burnout and engagement. Moreover, we controlled for several contextual factors such as job demands and team climate, ruling out the possibility that the crossover effects that we found within employee–co-worker dyads in fact represented contextual influences.

Another contribution to the crossover literature was our investigation of the specific sub-dimensions of burnout and engagement that cross over between co-workers. All three sub-dimensions of engagement (vigor, dedication and absorption) and burnout (exhaustion, cynicism and reduced professional efficacy) significantly crossed over between co-workers. It is possible that the exact crossover mechanism differs per sub-dimension. For example, as work dedication is a work attitude that may be less overtly expressed, it is possibly passed on more unconsciously to others. Exhaustion is likely to be expressed as an emotion, which may induce an empathic reaction in the co-worker, whereas professional efficacy represents work behavior that can directly help the co-worker to work more efficiently. Although future research should point out more specifically why crossover occurs, we conclude on the basis of our findings that all six work attitudes have a contagious potential at work.

Finally, we extended the work–family literature by combining the conflict perspective with the crossover literature. Others have made this link in order to explain spillover from work to family, and consequently crossover between spouses (Shimazu et al., 2009). Our study confirms that a spillover–crossover model is also applicable in the other direction. Spillover occurs from the family domain to the employee's work domain, as expressed in levels of burnout and work engagement. Consequently, at work, burnout and engagement cross over to the co-worker.

Limitations, future directions and practical implications

This study was subject to a number of limitations. First, the study was cross-sectional, meaning that no firm conclusions regarding causal relationships can be made. Second, the use of self-reports may have led to bias due to common method variance. Future studies could improve the measurement of FWI and sickness absence by means of partner and supervisor assessments, and the use of company records. Third, we had information on employees working in a single organization. More research is needed in order to examine whether our findings can be generalized to employees in other jobs. Despite these limitations, a clear strength of our study was the large number of employee–co-worker dyads, enabling us to test the crossover process from one employee to another more robustly.

Our results provide several leads for future research. The current study only included a negative measure for family–work interference. Future studies could examine how family-to-work facilitation affects the co-worker's work outcomes via the crossover of job burnout and engagement. It would also be interesting to specify the particular crossover mechanisms (e.g. empathy, automatic modeling) that are responsible for crossover of each work attitude. Furthermore, diary studies could measure more precisely how the relationship between FWI and experienced burnout and engagement varies on a daily basis. Crossover of those feelings could be more pronounced on days on which the employee experiences more FWI. Diary studies also allow for testing the causality of the relationships. In addition, more research is needed to unravel other possible mediators explaining the effect of employee FWI on co-worker work outcomes. For example, communication could play an important role in the crossover process of engagement and burnout due to FWI. Future research could address the question whether co-workers experiencing equal levels of FWI talk about family matters in a more, or less, positive tone. These conversations could in turn affect work attitudes and, consequently, work outcomes. Finally, we encourage researchers to examine the conditions, such as team cohesion and task interdependency, which may facilitate the crossover of burnout and engagement in co-worker dyads.

Our study provides useful insights for managerial practice. A positive work attitude within an employee–co-worker dyad seems crucial for good work outcomes, whereas pessimistic attitudes are double disastrous, impairing work outcomes of the co-worker as well (Bakker & Xanthopoulou, 2009). Managers could attempt to create a positive work atmosphere, for example by motivating employees, providing feedback, and emphasizing employees' strengths (Luthans et al., 2006). This evidently should also be focus of the team development, in which a positive and supportive climate can help and buffer contagious behaviors of complaining and fatigue. Moreover, our results emphasize the importance of work-life balance, both for the employee and the organization. Therefore, organizations could extend work-life policies such as temporally scaling back work hours, and providing flexible work schedules, thereby facilitating employees to gain work-life balance.

Conclusion

Summarizing, our study provides a worthwhile contribution to the work–family and the crossover literatures. Employee FWI appears to have far-reaching consequences at work, affecting co-workers as well. When the employee experienced FWI, the co-

worker's work outcomes reduced. Crossover of feelings burnout and engagement (i.e. cynicism and diminished dedication) explained why employee FWI influenced co-worker work outcomes. We conclude that family-to-work effects do not only occur within individual employees, but that these effects may also cross over and impact co-workers.

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