

# Emotional exhaustion and mental health problems among employees doing “people work”: the impact of job demands, job resources and family-to-work conflict

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## Abstract

**Objective** This study investigates the relationship between four job characteristics and family-to-work conflict on emotional exhaustion and mental health problems.

**Methods** Multiple regression analyses were performed using data from 1,008 mental health care employees. Separate regression analyses were computed for high and low patient interaction jobs.

**Results** Different job characteristics as well as family-to-work conflict were associated with emotional exhaustion and mental health problems in each job type. The relationship between family-to-work conflict and emotional exhaustion was mitigated by social support from colleagues for those who worked in low patient interaction jobs.

**Conclusion** In addition to general and specific stressors, it is worthwhile to include home-related stressors that interfere with the work domain in stress research.

**Keywords** Emotional exhaustion · Mental health problems · Job characteristics · Family-to-work conflict · Patient interaction · Mental health care workers

## Introduction

Work stress is one of the most prevalent health problems of these days (Paoli and Merllié 2000). Burnout is often used to characterize a reaction to prolonged work stress (Greenglass and Burke 2003), especially feelings of emotional exhaustion, which are believed to be at the core of burnout (Cordes and Dougherty 1993). Initially, the concept of burnout was developed to explain the longer-term process of chronic stressors leading to occupational stress resulting in the inability to cope with one's work, both psychologically and emotionally, among employees doing “people work” of some kind (Maslach 1982; Maslach and Schaufeli 1993).

As the concept of burnout was originally restricted to the human service sector, doing people work, i.e., “processing” people, rather than things or information, was considered a prerequisite for burnout (Demerouti et al. 2001). However, burnout occurs in occupations outside the service sector as well (Buunk et al. 1998; de Jonge and Schaufeli 1998; Demerouti et al. 2001). As the primary tasks of these jobs do not involve people work, the current opinion is that also commonly found job characteristics that are not specifically related to people work may affect burnout, especially feelings of emotional exhaustion (Demerouti et al. 2001).

Job characteristics that seem important in this respect are, on the one hand, job demands, (e.g., workload and time

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pressure) and on the other hand, job resources (e.g., autonomy and social support from colleagues). Jobs with high demands and few resources are found to be detrimental to employees' physical and mental health, especially in combination with poor rewards (Bakker et al. 2003; Calnan et al. 2000; Heuven and Bakker 2003; van Vegchel et al. 2001). For instance, De Jonge et al. (2000), found an elevated risk of emotional exhaustion for employees with high job demands and low job control of about eleven times compared with employees with low demands and high control. Also Demerouti et al. (2001) among three different occupational groups—human services, transport, and industry—found that job demands affected emotional exhaustion.

In addition to these commonly found job characteristics that may affect employees working in all types of jobs, emotional demands have been found to be specific for those working in human services (Borritz et al. 2005; Söderfeldt et al. 1996), as it is more complicated to work with and for people than with inanimate objects (de Jonge and Dormann 2003). Therefore, de Jonge and Dormann (2003) proposed that in studies of stress it is important to take the amount as well as the nature of interaction work performed in jobs into account, especially in the human service sector.

In the present study, we focus on mental health care organizations, and distinguish between employees with high and low levels of interaction with patients in their job (referred to as high patient interaction (HPI) jobs and low patient interaction (LPI) jobs). Employees with high levels of interaction with patients in their jobs are those employees whose primary task is to alter patients either physically or psychologically. Employees with low levels of interaction with patients in their jobs are those who, although not primarily involved with patients, perform person-related tasks that require (some) interaction with patients, like e.g., secretaries or receptionists.

Not all stress experienced on the job originates in the workplace; it may also be related to stress at home (Greenhaus and Parasuraman 1999; Hammer et al. 2004). A home domain-related stressor, that many employees experience from time to time, is family-to-work conflict (Behson 2002). Family-to-work conflict occurs if demands from the home and work domain are incompatible such that participation in the work domain becomes more difficult due to the demands of participation in the home domain (Frone et al. 1997; Greenhaus and Beutell 1985; Greenhaus and Parasuraman 1999; Gutek et al. 1991). Not only have family and home demands been found predictive of daily distress (Almeida and Kessler 1998), consequences of family-to-work conflict also have been found detrimental for employees' mental and physical health (Grzywacz and Bass 2003; Torkelson and Muhonen 2003). Adverse (mental) health outcomes associated with family-to-work conflict are psychosomatic complaints and medication use

(Burke and Greenglass 1999), depression and poor physical health (Frone et al. 1996, 1997), and hypertension (Frone et al. 1997). Although family-to-work conflict originates in the home domain, generally it affects the work domain negatively, as employees either worry about concerns at home while at work, or simply are in lack of time. Therefore, it is important to take family-to-work conflict into account in a study concerning job stress and employee health.

The aim of the present study is threefold. First, we examine how four job characteristics (i.e., two job demands and two job resources) are related to emotional exhaustion and mental health problems of employees working in HPI jobs and employees in LPI jobs. Second, we examine whether family-to-work conflict is related to emotional exhaustion and mental health problems after controlling for workload, emotional demands, autonomy and social support from colleagues. Finally, in addition to the direct effects of the job characteristics and family-to-work conflict, we examine whether the job characteristics and family-to-work conflict have a multiplicative interaction effect on emotional exhaustion and mental health problems.

Workload, social support and autonomy generally are found predictive of occupational burnout and health symptoms among employees in various occupations (Muhonen and Torkelson 2003). Therefore, we expect these job characteristics to be related to emotional exhaustion and mental health problems of employees in both HPI and LPI jobs. In line with previous research, we expect workload to be harmful for employee health and well-being. Social support and autonomy, on the other hand, are expected to improve employees' health and well-being. Therefore, we hypothesize that workload is related positively to emotional exhaustion and mental health problems (hypothesis 1a), and that autonomy and social support from colleagues are related negatively to both health outcomes (hypothesis 1b).

With regard to emotional demands, we expect that they may affect the health of employees in both job types, as both employees in HPI and LPI jobs are confronted with the behavior characteristics of others (e.g., aggressive or irritating behaviors). As emotional demands, like workload, lead to diminished health and well-being (de Jonge et al. 1999; Peeters and Le Blanc 2001), we hypothesize that emotional demands are positively related to emotional exhaustion and mental health problems for employees working in HPI jobs as well as for those in LPI jobs (hypothesis 1c).

Previous research found family-to-work conflict detrimental to one's (mental) health (Grzywacz and Bass 2003; Torkelson and Muhonen 2003). Moreover, employees doing people work may be more vulnerable than other employees to stress resulting from the demands of their work and family roles, especially when both roles involve a high degree of emotion management (Wharton and Erick-

son 1993). So, especially for types of jobs that are characterized by high levels of emotion management, not only work-related stressors but home-related stressors should be included as well. Hence, we hypothesize that (strain-based) family-to-work conflict is related positively to emotional exhaustion and mental health problems (hypothesis 2).

In job stress research, it is generally assumed that job resources may buffer the detrimental effect of job demands on health-related outcomes (Bakker et al. 2004; Demerouti et al. 2001; Karasek and Theorell 1990; Siegrist 1996). Recently, van Vegchel et al. (2005) demonstrated the plausibility of this multiplicative interaction or buffer effect between job demands and job resources in relation to work-related strain. In addition to previous stress research, which focused on job-related demands, we examine the multiplicative interaction between two job resources and a home-related demand; family-to-work conflict. This interaction effect moderates the relationship between the job resources (i.e., autonomy and social support) and family-to-work conflict, such that high levels of resources prevent the occurrence of emotional exhaustion and mental health problems despite high levels of family-to-work conflict. So, the relationship between family-to-work conflict and feelings of emotional exhaustion and mental health problems will be particularly strong when autonomy and social support are low. Accordingly, we expect that the job resources (autonomy and social support from colleagues) decrease the assumed negative relation between family-to-work conflict and emotional exhaustion and mental health problems (hypothesis 3a).

In job stress research it is not common to examine whether job demands strengthen each other and hence intensify their detrimental consequences for employee health and well-being. According to Hockey's (1997) cognitive-energetic framework, people use active compensatory and control processes to cope with disruptions in order to reach their primary task. Hockey argues that, especially in cases of high demands, it is hard for employees to cope. Because the work environment typically encourages a direct coping style that leaves (too) little opportunity for recovery (Hockey 1997). Extending this line of reasoning to our study, we believe that employees who are confronted with high demands from their work on a daily basis, such as mental health care workers, are at risk when confronted with demands from the home domain. It is likely that these employees can not recover fully, because of the demands from their job. Accordingly, there is no room for compensation between the two domains suggesting that the demands from both domains strengthen each other. Therefore we expect that the job demands (workload and emotional demands) increase the assumed negative relation between family-to-work conflict and emotional exhaustion and mental health problems (hypothesis 3b).

Prior to these issues, we test the assumption that employees working in HPI jobs report more emotional demands

than employees working in LPI jobs, and examine differences in emotional exhaustion and mental health problems between employees in the two job types.

## Method

### Sample and procedures

Data were obtained from employees of ten Dutch mental health care organizations. Questionnaires were sent to all employees ( $n = 2,463$ ) within these organizations. A total of 1,650 employees returned the questionnaire (response rate 67%). For the present study we only selected respondents who did people work. That is, respondents had to be working in jobs that were primarily directed at modifying patients either physically or psychologically, (referred to as HPI jobs), or in jobs that, although not primarily concerned with the interaction with patients, some interaction was involved (referred to as LPI jobs). A total of 1,223 respondents met these inclusion criteria; 916 respondents worked in HPI jobs and 307 in LPI jobs. Listwise exclusion of missing data from all variables (dependent, independent and background) resulted in a final sample of 1,008 respondents. About equal percentages of respondents were lost from both job types, i.e., HPI jobs 17% and LPI jobs 20%.

Thus, of the 1008 respondents, 762 respondents worked in HPI jobs (76%), and 246 in LPI jobs (24%). Respondents working in HPI jobs were psychiatrists, psychologists, psychotherapists, nurses, social workers, physicians or other jobs involving patients. Respondents working in LPI jobs were secretaries, receptionists or other supporting staff employees.

Most respondents of the total final sample were women (71%). The age range was 21–64 years and the mean age was 39.5 years. On average, respondents worked 29 h per week with a range of 8–40 h per week ( $SD = 6.9$ ). Average job tenure was 12 years ( $SD = 8.8$ ). Of the respondents working in HPI jobs 10% had an academic degree or completed some form of higher (55%) or secondary vocational education (27%). Most of the respondents working in LPI jobs completed either a secondary (25%) or higher vocational education (28%).<sup>1</sup>

### Measures

#### *Dependent variables*

Emotional exhaustion was measured by a subscale of the UBOS (Schaufeli and van Dierendonck 1994), a Dutch version of the Maslach Burnout Inventory (MBI) (Maslach and

<sup>1</sup> For an overview of the differences in demographic characteristics of both job types see Table 1.

**Table 1** Means, SD and correlations among study variables

Variables	Mean and (SD)		1	2	3	4	5	6	7	8	9	10	11	
	Total	LPI jobs	HPI jobs	LPI jobs	HPI jobs	LPI jobs	HPI jobs	LPI jobs	HPI jobs	LPI jobs	HPI jobs	LPI jobs	HPI jobs	
1 Age <sup>a</sup>	39.48 (9.41)	38.47 (9.40)	42.59 (8.71)	1.0										
2 Education	5.37 (1.22)	5.62 (.95)	4.59 (1.60)	-0.20**	1.0									
3 Working hours <sup>c</sup>	29.16 (6.86)	29.66 (6.30)	27.63 (8.20)	-0.05	0.13**	1.0								
4 Job tenure	12.35 (8.85)	12.61 (8.69)	11.55 (9.31)	0.61**	-0.07*	0.04	1.0							
5 Workload	2.30 (.44)	2.30 (.43)	2.32 (.45)	0.08*	0.09**	0.13*	1.0							
6 Autonomy <sup>a</sup>	2.68 (.48)	2.62 (.43)	2.85 (.57)	0.11*	0.03	0.09**	0.17**	1.0						
7 SS colleagues	3.35 (.37)	3.34 (.36)	3.39 (.40)	-0.04	-0.10**	-0.07*	-0.13**	-0.23**	0.18**	1.0				
8 Emotional demands <sup>a</sup>	2.27 (.47)	2.42 (.40)	1.82 (.39)	-0.07*	0.22**	0.17**	0.12	0.23**	-0.22**	-0.20**	1.0			
9 FWC <sup>a</sup>	1.33 (.37)	1.35 (.38)	1.25 (.35)	-0.08*	0.05	0.06	-0.03	0.04	-0.09**	-0.13**	0.14**	1.0		
10 Emotional exhaustion <sup>a</sup>	2.63 (1.12)	2.72 (1.11)	2.38 (1.09)	-0.03	0.11**	0.08*	0.03	0.41**	-0.23**	-0.26**	0.35**	0.21**	1.0	
11 Mental health problems <sup>b</sup>	1.13 (.17)	1.14 (.17)	1.11 (.16)	0.04	0.03	0.02	0.04	0.24**	-0.14**	-0.23**	0.26**	0.28**	0.61**	1.0

*N* = 1,008 except for the correlations with education, these are based on 959 respondents

HPI high patient interaction, LPI low patient interaction, SS colleagues social support from colleagues, FWC family-to-work conflict

\*  $P < 0.05$ ; \*\*  $P < 0.01$  (two-tailed)

<sup>a</sup> Significant at the  $P < 0.001$  level

<sup>b</sup> Significant at the  $P < 0.05$  level

Jackson 1986). This scale consists of five items, each with a 7-point rating scale ranging from 1, “never”, to 7, “always”. A sample item is: “I feel mentally exhausted due to my work”. Reliability and construct validity of the Dutch version are comparable with the original American version (Schaufeli and van Dierendonck 1994; Schaufeli and van Dierendonck 2001). Moreover, the UBOS has been used in many other Dutch studies (Bakker et al. 2002; Demerouti et al. 2004; Schaufeli and Bakker 2004). In the present study the Cronbach alpha was 0.87.

Mental health problems were measured with a scale based on the Four Dimensional Symptom Questionnaire (4DSQ) (Terluin 1996). The original questionnaire measures four dimensions of common mental health problems: distress, depression, anxiety and somatisation. For the present study the questionnaire was adapted and shortened to a single scale. All somatisation items were dropped, so the final scale covers distress, depression and anxiety and consists of 16 dichotomous items (1 = no, 2 = yes). The scale score was obtained by calculating a mean score across all 16 items, leading to one scale ranging from 1 to 2. Sample items are: “Did you have problems getting asleep last week?”, “Did you feel everything was pointless last week?”, “Did you feel anxious last month?”. The Cronbach alpha for this scale was 0.80. The predictive validity of the 4 DSQ has been found satisfactory in Dutch studies (Terluin et al. 2004).

### *Independent variables*

All four job characteristics were measured with a Dutch questionnaire assessing psychosocial job demands (VBBA) (van Veldhoven and Meijman 1994). The VBBA is a widely used instrument in research on psychological job factors and job stress in the Netherlands (see also van Veldhoven et al. 2005). In the present study, we used four scales of the VBBA, measuring workload (Cronbach’s alpha 0.89), emotional demands (Cronbach’s alpha 0.76), autonomy (Cronbach’s alpha 0.87), and social support from colleagues (Cronbach’s alpha 0.82). Items were scored on a 4-point rating scale ranging from 1, “always” to 4, “never”.

The workload scale consists of 11 items. A sample item of this scale is “Do you have to work very fast?”. The psychometric properties of this scale have been found to be good (de Croon et al. 2004; Sluiter et al. 2003; van Yperen and Janssen 2002). The emotional demands scale consists of seven items. A sample item of this scale is: “Do others call on you personally in your work?”. Good validity and reliability of this scale have been demonstrated in other Dutch studies (Jansen et al. 2003; Schaufeli and Bakker 2004; Sluiter et al. 2003). The autonomy scale also consists of 11 items. A sample item of this scale is: “Do you resolve problems arising in your work yourself?”. The psychometric

properties of this scale have been found to be good (Claessens et al. 2004; de Croon et al. 2004; Sluiter et al. 2003). Finally, the scale measuring social support from colleagues consists of nine items. A sample item of this scale is: “Is there a good atmosphere between you and your colleagues?”. The psychometric properties of this scale have been found to be good (Bakker et al. 2004; Geurts et al. 2003; Schaufeli and Bakker 2004). For all scales scores were reversed so that higher scores reflect more workload, more emotional demands, more autonomy and more social support from colleagues.

Family-to-work conflict was measured by the five strain-based items of the negative home-work interference scale of the “Survey Work–Home Interference–Nijmegen” (SWING) (Wagena and Geurts 2000). Items were scored on a 4-point rating scale ranging from 1, “always”, to 4, “never”. A sample items is: “How often does it happen that you do not fully enjoy your work because you worry about your home situation?”. Scores were reversed so that higher scores reflect more family-to-work conflict. Cronbach’s alpha was 0.83. Good validity and reliability of this scale have been demonstrated in other Dutch studies regarding work–family interference (Demerouti et al. 2004; Geurts et al. 2003; Jansen et al. 2003). For all measures (dependent and independent variables), a scale score was obtained by calculating a mean score across all items of the particular scale.

The background variables measured were gender (1 = women, 2 = men), age (continuous), educational level (measured with one item consisting of seven response categories ranging from 1, “primary education”, to 7, “university”), contract hours (continuous), job tenure (continuous) and job type, which was dichotomized into 1 = LPI jobs and 2 = HPI jobs.

### *Data analyses*

Zero order correlations were used to examine the general pattern of relations among the variables. Prior to regression analyses, the assumed differences in emotional demands as well as differences in the other study variables between employees working in HPI and LPI jobs were analyzed by a MANOVA based on the general linear model (GLM). Levene’s test for equality of variances was used. When the assumption of equal variance was violated, *t*-tests were computed and group means were compared using the statistics that do not assume equal variances. For each outcome variable, i.e., emotional exhaustion and mental health problems, a separate regression analysis was performed for employees working in HPI jobs and LPI jobs. The independent variables were entered as a block into the regression equation in the following order: (1) background variables; (2) job characteristics; (3) emotional demands, (4) family-

to-work conflict, and (5) the interaction effects between the job characteristics and family-to-work conflict, as well as between emotional demands and family-to-work conflict. In order to eliminate non-essential correlation between the interaction terms and their component variables, all predictor variables were centered (Aiken and West 1991; Tabachnick and Fidell 2001). To assess the model fit in each step the change in  $R^2$  was tested. All analyses were performed with the statistical program SPSS 12.01 for Windows.

## Results

Means, standard deviations and correlations of all study variables are shown in Table 1.

The job characteristics, workload and emotional demands correlated positively with emotional exhaustion and mental health problems, autonomy and social support from colleagues negatively. Family-to-work conflict was positively related with both the outcome variables.

Differences in study variables between the two job types

Means of both job types are also displayed in Table 1. Employees working in HPI jobs were higher educated ( $t(285) = -9.29, P < 0.001$ ), worked more hours per week ( $t(343) = -3.55, P < 0.001$ ) and were on the average younger ( $F = 39.65, P < 0.001$ ) than employees in LPI jobs. Furthermore, employees working in HPI jobs reported more emotional demands ( $F = 443.32, P < 0.001$ ), less autonomy ( $t(342) = 5.82, P < 0.001$ ), more family-to-work interference ( $t(445) = -3.97, P < 0.001$ ), and both more emotional exhaustion ( $F = 21.05, P < 0.001$ ) and mental health problems ( $F = 4.41, P < 0.05$ ).

Results of the regression analyses

In order to answer the question how the four job characteristics are related to emotional exhaustion Model 3 of the regression analyses had to be inspected, as this Model estimates the effect of the four job characteristics on the dependent variable taking into account the background variables. Initially, regression analyses were performed including educational level as a background variable. As educational level was not significantly related to both dependent variables, but did lead to 49 more missing cases, regression analyses were ran for both dependent variables without educational level. Significant relations between the other independent variables and the two dependent variables were the same for both the regression with and without educational level. Accordingly, regression analyses without educational level were used in the current study. Model 4 was inspected to answer whether family-to-work conflict is

related to emotional exhaustion, after controlling for the background variables and the job characteristics. Model 5 displays the interaction effects between the job characteristics and family-to-work conflict.

Emotional exhaustion

Results for emotional exhaustion are shown in Table 2 (HPI jobs) and 3 (LPI jobs). For employees working in HPI jobs it was found that women reported more feelings of emotional exhaustion ( $\beta = -0.07, P < 0.05$ ) than men. For those working in LPI jobs it was found that working more hours lead to more feelings of emotional exhaustion ( $\beta = 0.14, P < 0.05$ ).

Model 3 of Tables 2 and 3 showed that of the job characteristics, workload was related positively to emotional exhaustion for employees working in both HPI and LPI jobs ( $\beta = 0.30, P < 0.001$  and  $\beta = 0.31, P < 0.001$ , respectively). Autonomy was related negatively to emotional exhaustion in both job types ( $\beta = -0.11, P < 0.01$  for HPI jobs and  $\beta = -0.12, P < 0.05$  for LPI jobs), and social support from colleagues was related negatively to feelings of emotional exhaustion only of employees working in HPI jobs ( $\beta = -0.14, P < 0.001$ ). Thus, employees in both HPI and LPI jobs who report high levels of autonomy report less feelings of emotional exhaustion, while only employees in HPI jobs, who report high levels of social support from colleagues report less feelings of emotional exhaustion. Emotional demands were related positively to emotional exhaustion of employees working in both job types ( $\beta = 0.22, P < 0.001$  and  $\beta = 0.18, P < 0.01$ ). That is, employees who report high levels of emotional demands report more feelings of emotional exhaustion.

Model 4 of Tables 2 and 3 showed that family-to-work conflict was related positively to emotional exhaustion for employees in both job types ( $\beta = 0.11, P < 0.01$  for HPI and  $\beta = 0.26, P < 0.001$  for LPI). That is, employees who report high levels of family-to-work conflict report more feelings of emotional exhaustion.

Table 3 showed that only for employees working in LPI jobs a significant interaction effect was found (see Model 5). The “chunk” test (Kleinbaum 1992) revealed a significant increase in explained variance between the model with all interaction terms (Model 5) and the model with none of the interaction terms (Model 4). Evaluation of the individual interaction terms showed that the interaction effect of social support from colleagues by family-to-work conflict was significant ( $\beta = 0.18, P < 0.01$ ) for employees working in LPI jobs. This interaction effect showed that employees who receive little social support from colleagues and at the same time experience high levels of family-to-work conflict, report more feelings of emotional exhaustion than employees who receive much social support from their

**Table 2** Job characteristics and FWC as predictors of emotional exhaustion of employees working in HPI jobs (*n* = 762)

Step	Variable	Model 1			Model 2			Model 3			Model 4		
		<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$
1	Age	0.00	0.01	-0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.01
	Gender	-0.22	0.10	-0.09*	-0.15	0.08	-0.06	-0.17	0.08	-0.07*	-0.16	0.08	-0.06
	Working hours	0.01	0.01	0.05	0.00	0.01	0.02	0.00	0.01	0.01	0.00	0.01	0.00
	Job tenure	-0.00	0.01	-0.01	-0.01	0.01	-0.05	-0.01	0.01	-0.05	-0.01	0.01	-0.05
2	Workload				0.95	0.09	0.37***	0.79	0.09	0.30***	0.78	0.09	0.30***
	Autonomy				-0.32	0.09	-0.12***	-0.27	0.08	-0.11**	-0.26	0.08	-0.10**
	SS colleagues				-0.49	0.10	-0.16***	-0.43	0.10	-0.14***	-0.39	0.10	-0.13***
3	Emotional demands						0.61	0.09	0.22***	0.59	0.09	0.21***	
4	FWC									0.31	0.09	0.11**	
5	(No significant interactions)												
	<i>R</i> <sup>2</sup>	0.01			0.23			0.27			0.28		
	<i>F</i> for change in <i>R</i> <sup>2</sup>	1.64			72.81***			42.39***			11.18**		

All predictor variables were mean centered

*Gender 1* female, *Gender 2* male, *SS colleagues* social support from colleagues, *FWC* family-to-work conflict, *Nonsignificant interactions* are not displayed

\* *P* < 0.05; \*\* *P* < 0.01; \*\*\* *P* < 0.001

**Table 3** Job characteristics and FWC as predictors of emotional exhaustion of employees working in LPI jobs (*n* = 246)

Step	Variable	Model 1			Model 2			Model 3			Model 4			Model 5		
		<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$
1	Age	-0.00	0.01	-0.01	-0.01	0.01	-0.05	-0.01	0.01	-0.06	-0.00	0.01	-0.03	0.00	0.01	0.00
	Gender	-0.33	0.18	-0.14	-0.30	0.17	-0.12	-0.31	0.16	-0.13	-0.23	0.16	-0.10	-0.23	0.16	-0.09
	Working hours	0.03	0.01	0.20**	0.02	0.01	0.16*	0.02	0.01	0.14*	0.02	0.01	0.12	0.02	0.01	0.12
	Job tenure	0.02	0.01	0.19*	0.01	0.01	0.10	0.01	0.01	0.06	0.01	0.01	0.05	0.01	0.01	0.06
2	Workload				0.78	0.15	0.33***	0.74	0.15	0.31***	0.80	0.14	0.33***	0.92	0.16	0.38***
	Autonomy				-0.26	0.12	-0.14*	-0.24	0.12	-0.12*	-0.21	0.11	-0.11	-0.17	0.13	-0.09
	SS colleagues				-0.23	0.18	-0.08	-0.14	0.18	-0.05	-0.08	0.17	-0.03	0.07	0.18	0.03
3	Emotional demands						0.51	0.18	0.18**	0.49	0.17	0.17**	0.45	0.17	0.16**	
4	FWC									0.80	0.17	0.26***	0.75	0.27	0.24**	
5	SS colleagues* FWC												1.38	0.44	0.18**	
	<i>R</i> <sup>2</sup>	0.07			0.21			0.24			0.30			0.33		
	<i>F</i> for change in <i>R</i> <sup>2</sup>	4.41**			14.72***			8.41**			21.26***			9.74**		

All predictor variables were mean centered

*Gender 1* female, *Gender 2* male, *SS colleagues* social support from colleagues, *FWC* family-to-work conflict, *Nonsignificant interactions* are not displayed

\* *P* < 0.05; \*\* *P* < 0.01; \*\*\* *P* < 0.001

colleagues and experience high levels of family-to-work conflict.

As shown in Tables 2 and 3, after controlling for the background variables, the job characteristics explained a large portion of the variability in both job types ( $\Delta R^2 = 0.22$ , *P* < 0.001, for HPI jobs, and  $\Delta R^2 = 0.14$ , *P* < 0.001 for LPI jobs). The proportion of additional variance explained by emotional demands, after controlling for the background variables and the job characteristics was small, but signifi-

cant for employees in both job types ( $\Delta R^2 = 0.04$ , *P* < 0.001 and  $\Delta R^2 = 0.03$ , *P* < 0.01, respectively). Family-to-work conflict explained only a small portion of emotional exhaustion after controlling for the other study variables for employees working in HPI jobs ( $\Delta R^2 = 0.01$ , *P* < 0.01). For employees in LPI jobs the additional variance explained was somewhat larger ( $\Delta R^2 = 0.06$ , *P* < 0.001). The interaction effect of social support from colleagues by family-to-work conflict explained a significant portion of the variability

associated with emotional exhaustion for those working in LPI jobs ( $\Delta R^2 = 0.03$ ,  $P < 0.05$ ). For employees working in HPI jobs the full regression models accounted for 28% of the variability in emotional exhaustion and for employees in LPI jobs for 30%.

### Mental health problems

Results for mental health problems are shown in Table 4 (HPI jobs) and Table 5 (LPI jobs). For employees working in HPI jobs, it was found that women reported more mental health problems ( $\beta = -0.12$ ,  $P < 0.01$ ) than men. For those working in LPI jobs none of the background variables were significant.

Model 3 of Tables 4 and 5 showed that of the job characteristics, workload was related positively to mental health problems for employees in both job types ( $\beta = 0.12$ ,  $P < 0.01$  for HPI jobs and  $\beta = 0.15$ ,  $P < 0.01$  for LPI jobs). Autonomy was not significantly related to mental health problems of employees in HPI or LPI jobs. Social support from colleagues and emotional demands were only significant for those working in HPI jobs ( $\beta = -0.18$ ,  $P < 0.001$  and  $\beta = 0.22$ ,  $P < 0.001$ , respectively). So, employees working in HPI jobs who report low levels of social support from colleagues or experience high levels of emotional demands report more mental health problems than employees in HPI jobs who report high levels of social support or low levels of emotional demands.

Model 4 of Tables 4 and 5 showed that family-to-work conflict was related to mental health problems of employees working in both job types ( $\beta = 0.22$ ,  $P < 0.001$  for HPI

jobs and  $\beta = 0.29$ ,  $P < 0.001$  for LPI jobs), indicating that employees who experience family-to-work conflict report more mental health problems than those who do not experience family-to-work conflict.

None of the interactions between family-to-work conflict and the job characteristics were significant, indicating that the direct effects of family-to-work conflict and the job characteristics do not have a multiplicative effect on mental health problems for employees working in HPI or LPI jobs (see Model 5 of Tables 4 and 5).

As shown in Tables 4 and 5, for employees in HPI jobs a large part of the variability in mental health problems was explained by the job characteristics ( $\Delta R^2 = 0.10$ ,  $P < 0.001$ ), family-to-work conflict explained a large part of the variability in mental health problems of those in LPI jobs ( $\Delta R^2 = 0.08$ ,  $P < 0.001$ ).

The job characteristics and family-to-work conflict explained a significant part in the variability in mental health problems for both employees in HPI and LPI jobs ( $\Delta R^2 = 0.10$ ,  $P < 0.001$  for HPI jobs, and  $\Delta R^2 = 0.04$ ,  $P < 0.05$  for LPI jobs) and ( $\Delta R^2 = 0.05$ ,  $P < 0.001$  for HPI jobs, and  $\Delta R^2 = 0.08$ ,  $P < 0.001$  for LPI jobs) respectively).

The proportion of additional variance explained by emotional demands, after controlling for the background variables and the job characteristics was only significant for employees working in HPI jobs ( $\Delta R^2 = 0.04$ ,  $P < 0.001$ ). For both job types the interaction effects did not explained a significant portion of the variability associated with mental health problems. For employees in HPI jobs the full regression models accounted for 21% of the variability in mental health problems and for employees in LPI jobs for 17%.

**Table 4** Job characteristics and FWC as predictors of mental health problems of employees working in HPI jobs ( $n = 762$ )

Step	Variable	Model 1			Model 2			Model 3			Model 4		
		B	SE B	$\beta$	B	SE B	$\beta$	B	SE B	$\beta$	B	SE B	$\beta$
1	Age	0.00	0.00	0.01	0.00	0.00	0.08	0.01	0.00	0.09	0.00	0.00	0.09*
	Gender	-0.05	0.01	-0.13**	-0.04	0.01	-0.11**	-0.04	0.01	-0.12**	-0.04	0.01	-0.11**
	Working hours	0.00	0.00	0.03	0.00	0.00	0.02	0.00	0.01	0.01	0.00	0.00	-0.01
	Job tenure	0.00	0.00	-0.02	-0.00	0.00	-0.05	-0.00	0.00	-0.06	-0.00	0.00	-0.05
2	Workload				0.07	0.01	0.18***	0.05	0.01	0.12**	0.05	0.01	0.12**
	Autonomy				-0.03	0.01	-0.09*	-0.03	0.01	-0.07	-0.02	0.01	-0.06
	SS colleagues				-0.09	0.02	-0.19***	-0.08	0.02	-0.18***	-0.07	0.02	-0.15***
3	Emotional demands							0.09	0.02	0.22***	0.09	0.02	0.20***
4	FWC										0.10	0.02	0.22***
5	(No significant interactions)												
	$R^2$				0.12			0.16			0.21		
	F for change in $R^2$				29.74***			36.11***			43.03***		

All predictor variables were mean centered

Gender 1 female, Gender 2 male, SS colleagues social support from colleagues, FWC family-to-work conflict, Nonsignificant interactions are not displayed

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$



**Table 5** Job characteristics and FWC as predictors of mental health problems of employees working in LPI jobs ( $n = 246$ )

Step	Variable	Model 1			Model 2			Model 3			Model 4		
		<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	<i>B</i>	<i>B</i>	SE <i>B</i>	$\beta$
1	Age	0.00	0.00	0.07	0.00	0.00	0.06	0.01	0.01	0.06	0.00	0.00	0.09
	Gender	−0.05	0.03	−0.13	−0.05	0.03	−0.13	−0.05	0.03	−0.13	−0.03	0.03	−0.10
	Working hours	0.00	0.00	0.10	0.00	0.00	0.06	0.00	0.00	0.05	0.00	0.00	0.03
	Job tenure	0.00	0.00	0.13	0.00	0.00	0.06	0.00	0.00	0.04	0.00	0.00	0.03
2	Workload				0.05	0.02	0.16*	0.05	0.02	0.15*	0.06	0.02	0.17**
	Autonomy				−0.00	0.02	−0.01	−0.00	0.02	−0.01	0.00	0.02	0.01
	SS colleagues				−0.05	0.03	−0.12	−0.04	0.03	−0.10	−0.03	0.03	−0.08
3	Emotional demands							0.05	0.03	0.11	0.04	0.03	0.11
4	FWC										0.13	0.03	0.29***
5	(No significant interactions)												
	$R^2$	0.04			0.08			0.09			0.17		
	<i>F</i> for change in $R^2$	2.38			3.77*			2.74			44.58***		

All predictor variables were mean centered

*Gender 1* female, *Gender 2* male, *SS colleagues* social support from colleagues, *FWC* family-to-work conflict, *Nonsignificant interactions* are not displayed

\*  $P < 0.05$ ; \*\*  $P < 0.01$ ; \*\*\*  $P < 0.001$

Considering these results for emotional exhaustion and mental health problems, it appears that hypothesis 1a, assuming that workload is related positively to emotional exhaustion and mental health problems, was confirmed for both job types. Hypothesis 1b, that autonomy and social support from colleagues are related negatively to emotional exhaustion and mental health problems, was partially confirmed. That is, with regard to emotional exhaustion this hypothesis was only supported among those working in HPI jobs, and partially among those working in LPI jobs. That is, both social support from colleagues and autonomy were related negatively with emotional exhaustion among those working in HPI jobs, whereas autonomy was related negatively with emotional exhaustion among employees in LPI jobs. With regard to mental health problems, only among employees working in HPI jobs this hypothesis was partially confirmed. That is, social support from colleagues was negatively related with mental health problems of HPI employees. No significant relations were found for employees in LPI jobs. Hypothesis 1c, assuming that emotional demands were related positively to emotional exhaustion and mental health problems, was confirmed for emotional exhaustion. For mental health problems, emotional demands were only related to mental health problems of employees in HPI jobs. Hence, this hypothesis was partially confirmed.

Hypothesis 2, in which we assume that family-to-work conflict is positively related to both health outcomes, was confirmed in both job types.

Hypothesis 3a assumed a multiplicative interaction effect of job resources and family-to-work conflict on emotional

exhaustion and mental health problems, i.e., job resources decrease the negative effect of family-to-work conflict on emotional exhaustion and mental health problems. We only found support for a multiplicative effect of social support from colleagues and family-to-work conflict on emotional exhaustion, and only among employees working in LPI jobs. Hypothesis 3b, in which the job demands are assumed to increase the assumed negative effect of family-to-work conflict on emotional exhaustion and mental health problems, was not at all confirmed.

## Discussion

The present study contributes to the existing occupational health literature in two ways. First, to gain more insight into the impact of service jobs on service employees' health and well-being, following de Jonge and Dormann(2003), who stress the importance of the distinction between service jobs based on the amount of interaction work performed by service workers when examining stress in the service sector, our study distinguishes between different levels of interaction with patients among mental health care employees. More specifically, our study distinguishes between employees working in high patient interaction (HPI) jobs, i.e., jobs aimed at altering or modifying patients, and employees working in low patient interaction (LPI) jobs, i.e., jobs that involve performing person-related tasks that require some interaction with patients. Second, in addition to common job stressors, a home-related stressor that interferes with the work domain, i.e., strain-based family-to-

work conflict, was incorporated in this study. This, we believe is a contribution as most occupational health research focuses on work–family conflict in general or on work-to-family conflict.

The aim of the present study was to examine the impact of three common job stressors (i.e., workload, autonomy and social support from colleagues), a job stressor specific to the health care sector (i.e., emotional demands) and a home-related stressor (i.e., family-to-work conflict) on mental health outcomes among employees working in HPI jobs and LPI jobs. Furthermore, we examined whether these job characteristics and family-to-work conflict have a multiplicative interaction effect on employees' feelings of emotional exhaustion and mental health problems.

Generally accepted assumptions concerning differences between employees in HPI jobs and LPI jobs were tested. Results were in favor of the current assumption that employees working in HPI jobs report more emotional demands than employees in LPI jobs. Furthermore it appeared that employees working in HPI jobs also report more feelings of emotional exhaustion and more mental health problems. With regard to the level of complaints, however, it should be noted that the level of emotional exhaustion among the respondents of our study were moderate. Compared with the norm scores (Schaufeli and van Dierendonck 1994) of healthy employees, respondents in our sample report higher levels of emotional exhaustion, whereas compared with employees who report burnout complaints respondents in our sample report lower levels of emotional exhaustion.<sup>2</sup> Scores of mental health problems could not be compared with their norm scores, as we used an adapted shortened scale to measure mental health problems.

In accordance with previous research, both emotional demands and workload were found to be associated with emotional exhaustion and mental health problems. However, it appeared that emotional demands only contributed to the explanation of mental health problems of employees in HPI jobs, whereas mental health of employees working in LPI jobs was not affected by emotional demands. Results for job autonomy and social support from colleagues were not as expected; autonomy only decreased feelings of emotional exhaustion and was not related with mental health problems. Social support from colleagues only decreased feelings of emotional exhaustion and mental health problems of those working in HPI jobs.

Although the level of complaints in our study were modest, employees working in HPI jobs seem to be more at risk when it comes to their health and well-being than employees in LPI jobs. That is, employees working in HPI jobs,

who encounter already a higher level of emotional demands from their jobs than LPI employees, and for whom these emotional demands seem to have a higher impact on their well-being, suffer from a lack of autonomy and social support. A lack of autonomy and support adds to their stress level in a work situation that is generally believed to be more stressful than in LPI jobs. Employees working in LPI jobs are confronted with less emotional demands, have more autonomy, and receive more social support from colleagues. Moreover, they report less family-to-work conflict and work less hours per week.

With respect to family-to-work conflict, support was found for the idea that, in addition to job stressors, this home-related stressor relates to emotional exhaustion and mental health problems. Where previous studies showed that work-to-family conflict has a significant effect on employee's health outcomes (Frone et al. 1997; Proost et al. 2004), we extended these findings by showing that family-to-work conflict is associated with emotional exhaustion and mental health problems. Furthermore, this study showed that the adverse effect of family-to-work conflict on feelings of emotional exhaustion is mitigated by social support from colleagues for those working in LPI jobs. Given these results, we consider it useful to integrate family-to-work conflict into job stress research and suggest to further investigate the effect of family-to-work conflict on health-related outcomes, both directly and combined with other stressors.

Generally, the job stressors explained the largest part of variance in both emotional exhaustion and mental health problems of employees working in HPI jobs, whereas for employees in LPI jobs the largest part of variance was explained by family-to-work conflict, especially of mental health problems. These findings, in line with Borritz et al. (2005), de Jonge and Dormann (2003), and Sparks and Cooper (1999), show that it is important to take account of different stressors in different job types.

Several limitations of the present study and issues for future research can be mentioned. First, as our data were cross-sectional it is not possible to draw any causal conclusions based on findings of the present study. The direction of the relationships between stressors and outcome variables can only be determined theoretically. Thus, although it is likely that job demands, job resources and family-to-work conflict influence feelings of emotional exhaustion and mental health problems, it might be the other way around as well. That is, feelings of emotional exhaustion and mental health complaints may influence the perception of stress-related factors at work and at home. Second, we only used self-report data, which may lead to data contamination due to common method variance. Although several studies have shown common method variance not to be as problematic as once thought (Semmer et al. 1996; Spector

<sup>2</sup> Detailed information about the norm scores can be obtained from the corresponding author.

1992), common method variance would enlarge main effects at the cost of finding interaction effects (cf. de Jonge et al. 1999). In our case this may have resulted in not finding significant interaction effects apart from the social support from colleagues by family-to-work conflict interaction. Third, we did not incorporate intrinsic personal characteristics, such as for example overcommitment, in our study. This may be a limitation, as some studies found evidence for the impact of overcommitment on the relation between stress and employee health (de Jonge et al. 2000; Siegrist and Peter 1994). On the other hand, other studies did not support these findings (de Jonge and Hamers 2000). Fourth, employees in LPI jobs were lower educated and worked on lower job levels than those in HPI jobs, which may have led to confounded effects of job type and job level. Finally, our data are from a Dutch population which may limit its generalizability to other countries. An illustration of this is for instance that working part-time is very common among women in the Netherlands (SCP 2006), making it difficult to generalize our results to studies performed in countries where working part-time is not the norm among women.

In conclusion, the present findings provide evidence that different job characteristics are related to emotional exhaustion and mental health problems of employees working in HPI and LPI jobs. Furthermore, it appears that the job resources; autonomy and social support act in a different way for those working in HPI and LPI jobs. That is, although social support did not reduce emotional exhaustion and mental health problems of employees in LPI jobs directly, it buffered the impact of family-to-work conflict on emotional exhaustion for those in LPI jobs. Whereas findings for employees in HPI jobs were the other way around. In accordance with Frone et al. (1997) and Reid Keene and Reynolds (2005), we found that family-to-work conflict has negative consequences for one's emotional exhaustion and mental health. Hence stress research as well as organizational programs designed to promote employees' health should take this home-related stressor into account.

The present findings have practical implications as well. Although, levels of complaints and stress were moderate, findings of the present study can be helpful in programs of stress management or stress prevention within the health care services. Especially as it provides insight into service jobs with different levels of patient interaction. With regard to HPI jobs, where emotional demands have a high impact, and often cannot easily be diminished due to the nature of these jobs, it will be useful to pay careful attention to those factors that can be improved in order to diminish the stress level of the work situation. Giving those employees autonomy if possible, encouraging mutual social support among colleagues, protecting them from too heavy workloads, and providing work-family support are all measures that are within reach of management and can probably prevent or at least diminish

health problems due to the stressful nature of HPI jobs. Nevertheless, one should be careful not to overlook employees with low levels of patient interaction in their jobs. Although most research emphasizes the adverse health effects of stressors for those working in HPI jobs, our study demonstrates that employees with low levels of patient interaction also may suffer adverse effects from various stressors as well. For them also, paying attention to workload and, especially, to diminishing family-to-work conflict by providing relevant work-family programs may enhance their well-being and prevent burnout. Moreover, as different stressors are associated with emotional exhaustion and mental health problems of employees working in the two job types, employees with high and low levels of patient interaction should not be treated in the same way in programs of stress prevention.

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