

# Psychosocial work environment and burnout among emergency medical and nursing staff

V. Escribà-Agüir · D. Martín-Baena ·  
S. Pérez-Hoyos

Received: 15 November 2005 / Accepted: 4 April 2006 / Published online: 20 May 2006  
© Springer-Verlag 2006

**Abstract** *Objectives:* The prevalence of burnout syndrome is increasing among doctors and nurses. The aim of this study was to analyse the relationship between the psychosocial work environment and burnout syndrome among emergency medical and nursing staff in Spain. A secondary aim was to determine if the effect of this psychosocial work environment on burnout was different for doctors and nurses. *Methods:* A cross-sectional survey was carried out by means of a mail questionnaire among 945 emergency doctors and nursing staff of Spain. The outcome variable was three dimensions of burnout syndrome [emotional exhaustion (EE), personal accomplishment (PA), depersonalisation (DP)]. The explanatory variable was that psychosocial work environment evaluated according to Karasek and Johnson's demand-control model. The adjusted odds ratios (OR) and their 95% confidence intervals were calculated by logistical regression. *Results:* The probability of high EE was greater among those exposed to high psychological demands, OR 4.66 (2.75–7.90), low job control, OR 1.65 (1.04–2.63), and

low supervisors' social support, OR 1.64 (1.01–2.59). Emotional exhaustion dimension was negatively influenced by low control only among doctors. Those exposed to low job control had a higher risk of low PA, OR 2.55 (1.66–3.94). There was no evidence of negative effect of psychosocial risk factors on the DP. Prevalence of EE and PA was higher among doctors and nurses. *Conclusions:* The presence of risk factors derived from work organisation within the work place (psychosocial risk factors) increases the probability of presenting burnout syndrome and, above all, EE.

**Keywords** Psychological stress · Burnout professional · Emergency medicine

## Introduction

The medical staff, and particularly staff working in the emergency department (doctors and nurses) is exposed to an important number of psychosocial risk factors as a consequence of the type of work (high intensity of workload, working alone, lack of social support, lack of free time, unsociable rota, violent, abusive or demanding patients, seriously ill patients, etc.) (Williams et al. 1997). These risk factors may alter their physical health, and above all, their mental health. The negative consequences of exposure to these psychosocial risk factors outline a serious problem not only for the physical and psychological well-being of doctors and nurses, but also for the quality of the care provided to their patients (Visser et al. 2003). The identification of the psychosocial risk factors to which emergency doctors and nurses may be exposed to, will allow to orient preventive measures which can be useful to

---

V. Escribà-Agüir · D. Martín-Baena  
Gender and Health Network (RIGS), Valencia, Spain

S. Pérez-Hoyos · V. Escribà-Agüir · D. Martín-Baena  
Valencian School for Health Studies  
(Regional Ministry of Health), "Generalitat Valenciana",  
Valencia, Spain

S. Pérez-Hoyos  
Community Nursing and Public Health Department,  
University of Alicante, Alicante, Spain

V. Escribà-Agüir (✉)  
C/ Juan de Garay, 21, 46017 Valencia, Spain  
e-mail: escriba\_vic@gva.es

improve the health and quality of life of this professional group (Weibel et al. 2003).

Burnout in the life of health care workers is a term used to describe a psychological state, which appears after a long period of exposure to psychosocial risk factors. It has been described as a syndrome that appears as a consequence of working in contact with people who suffer. It is characterised by emotional exhaustion (EE, feeling emotionally overloaded with work), depersonalisation (DP, unfeeling and interpersonal response towards people) and decreased personal accomplishment (PA, decreased feeling of competence and achievement at work) (Schaufeli 1999).

The causes of burnout are more linked with the psychosocial work environment (work overload, lack of job control, low job social support, lack of autonomy, time pressure, much direct patient contact, etc.), rather than with personal factors (Schaufeli 1999; Stansfeld et al. 1999; Ramírez et al. 1995, 1996; Visser et al. 2003; Sibbald et al. 2003; Greenglass et al. 1998; Imai et al. 2004).

The scientific literature has highlighted the negative impact of psychosocial work risk factors on burnout syndrome among doctors (Visser et al. 2003; Stansfeld et al. 1999; Ramírez et al. 1995; Kluger et al. 2003; Graham et al. 2000; Grunfeld et al. 2000) and nurses (Gillespie and Melby 2003). However, the demand-control model developed by Karasek and Theorell (1990) have been scarcely used to analyse the association between work psychosocial risk factors and burnout syndrome among doctors and nurses. A lot has been written about the psychosocial work environment and burnout among doctors (Visser et al. 2003; Ramírez et al. 1995, 1996; Kluger et al. 2003; Graham et al. 2000; Grunfeld et al. 2000) and nurses (Gillespie and Melby 2003; Imai et al. 2004) but few investigations have focused in determining the differences and similarities of the effect of psychosocial work environment on burnout syndrome among doctors and nurses.

The aim of this study was to analyse the relationship between the psychosocial work environment and burnout syndrome among emergency medical and nursing staff in Spain. A secondary aim was to determine if the effect of this psychosocial work environment on burnout was different for doctors and nurses.

## Methods

### Design and sample

A cross-sectional survey was carried out over a random sample, out of a total of 945 doctors and nurses,

members of the Spanish Society of Emergency Medicine. Response rate was 67.6%, resulting in a sample of 639 doctors and nurses.

### Variables used in analysis

Data collection was carried out by means of a mail questionnaire during a period of 8 months (October 2000–May 2001).

### Outcome variable

The three dimensions of Maslach's burnout inventory (MBI) validated for Spain were used (Maslach and Jackson 1986; Seisdedos 1997): EE, PA and DP. This scale includes a total of 22 items: nine for the EE dimension, eight for PA and five for DP. Each item of MBI is rated on a 7-point scale according to how often it is experienced, from "never" to "every day". The total score for each dimension was categorised as "low", "average" or "high" according to the predetermined cut-off scores based on normative data from a sample of American health professionals. (Maslach and Jackson 1986; Seisdedos 1997) A high degree of burnout is indicated by high scores on the EE and DP subscales and low scores on the PA.

### Main co-variables

In order to evaluate the physical workload and psychosocial work environment we have used the Karasek and Theorell job content questionnaire (JCQ), which follows the demand-control model proposed by those authors (Karasek and Theorell 1990). Static physical workload included three questions and dynamic ones work included two. The indicator for each type of physical workload was constructed by adding the scores of the questions, decoding of the result in terciles. The psychosocial work environment was determined through the four dimensions of the JCQ: psychological demands (nine items), job control (nine items) supervisors' social support (eight items) and co-workers' social support (six items). This questionnaire had been validated previously by the research team among a sample of the hospital nursing staff (Escribà-Agüir et al. 2001).

### Potential confounding variables

Previous studies have showed a relationship between several professional variables (department, professional antiquity, type of contract, number of working hours Schaufeli 1999; Ramírez et al. 1996; Varga et al.

1996; Burbeck et al. 2004) and personal and gender-role-related variables (gender, age, children's age, couple's relationship quality and number of hours per week devoted to domestic chores Ramírez et al. 1996; Escribà-Agüir et al. 1999; Artazcoz Lazcano et al. 2001; Weinberg and Creed 2000) and psychological well-being (burnout syndrome). Provided that these professional, personal and gender-role-related variables may also be associated with psychosocial work environment, they have been considered in the analysis as possible confounding factors.

### Statistical analysis

A descriptive analysis stratified by a professional category was carried out for outcomes, exposure and confounding variables. To estimate the degree of relation between the psychosocial work environment risk factors and MBI, a logistic regression model was fitted for each of the three dimensions. Professional category was included in the model and interaction between this variable and psychosocial work environment risk factors were checked.

### Results

The distribution of MBI dimensions and of psychosocial work environment, professional and personal characteristics is showed in Table 1. Prevalence of high EE, low PA and high DP among the total sample (doctors and nurses), were of 28.9, 56.2 and 36.6%, respectively. Among doctors, those prevalences were of 36.5, 63.7, 38.7%, respectively. However, prevalences of EE and PA among nurses were lower than among doctors (19.0 and 46.5%, respectively). The percentage of exposure to poor psychosocial work characteristics (high emotional demands, low job control and low supervisors' social support) was higher among doctors than among nurses, particularly for emotional demands (almost 60% of doctors were exposed to high emotional demands). On the other hand, the level of exposure to high static and dynamic workload was higher among nurses, especially the level of high static load (72.1% of nurses). As far as professional and gender-role characteristics are concerned, show that there was a higher percentage of women among nurses (55.9%) than among doctors (34.6%). Nurses were younger than doctors (57.7% of nurses were under 37 years old, as opposed to 17.4% of doctors) and therefore, their professional antiquity was smaller. Doctors worked mainly in emergency in a hospital department and with temporary contract.

Also, the number of monthly working hours was higher (57% of doctors worked more than 150 h per month as opposed to 29.5% of nurses). 39.8% of doctors and 35.1% of nurses considered their marital relationship very good, but there was a higher percentage of nurses who did not live with a couple (34.1% as opposed to 13.2% of doctors).

The results obtained after adjusting a logistic regression model for each MBI dimension are showed in Table 2. Doctors had a higher risk of EE than nurses, although the association was at the limit of statistical significance. The four variables which characterise the psychosocial work environment (psychological demands, job control, supervisors' social support and co-workers' social support) increase the probability of high EE, although the association with co-workers' social support was at the limit of statistical significance. Psychological demands account for the highest odds ratio (OR = 4.66, 95% CI 2.75–7.90). There was no evidence of association between physical workload (static and dynamic physical work load) and EE. A border-line significance interaction ( $P = 0.05$ ) was found between job control and professional category. In that sense, doctors with low control had higher risk of EE (OR = 2.28, 95% CI 1.28–4.03) while no effect was found among nurses (OR = 0.88, 95% CI 0.39–1.95).

Again doctors had a greater probability of low PA. Only low job control increased the risk of low PA. Low PA was not statistically associated with job control, supervisors' social support and co-workers' social support and physical workload. No interaction was found between psychosocial work environment risk factors and professional category for PA.

There were no differences in the probability of DP between doctors and nurses. The probability of presenting high DP was greater among those exposed to high psychological demands, although the association was at the limit of statistical significance. High level of DP was not statistically associated with job control, supervisors' social support and co-workers' social support. No interaction was found between psychosocial work environment risk factors and professional category for DP.

### Discussion

This manuscript presents the results of the effect of psychosocial work environment (psychological demands, job control, supervisors' social support and co-workers' social support) and physical workload on the burnout syndrome among emergency doctors and

**Table 1** MBI dimensions (emotional exhaustion, personal accomplishment, depersonalisation) and psychosocial work environment, professional and personal characteristics of the sample

	Nurses		Doctors		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Emotional exhaustion						
Medium/low	221	81.0	224	63.5	445	71.1
High	52	19.0	129	36.5	181	28.9
Personal accomplishment						
High/medium	146	53.5	128	36.3	274	43.8
Low	127	46.5	225	63.7	352	56.2
Depersonalisation						
Medium/low	181	66.1	215	61.3	396	63.4
High	93	33.9	136	38.7	229	36.6
Psychological-emotional demands						
Low	157	58.8	144	40.8	301	48.5
High	110	41.2	209	59.2	319	51.5
Job control						
High	173	64.3	203	58.5	376	61.0
Low	96	35.7	144	41.5	240	39.0
Supervisors' social support						
High	157	58.1	157	44.6	314	50.5
Low	113	41.9	195	55.4	308	49.5
Co-workers' social support						
High	227	83.2	274	76.5	501	79.4
Low	46	16.8	84	23.5	130	20.6
Dynamic physical workload						
Low	127	46.5	221	62.3	241	37.7
High	146	53.5	134	37.7	398	62.3
Static physical workload						
Low	78	27.9	163	45.4	348	55.4
High	202	72.1	196	54.6	280	44.6
Gender						
Male	123	44.1	233	65.4	356	56.1
Female	156	55.9	123	34.6	279	43.9
Age						
More than 43	34	12.2	109	30.5	143	22.5
37–43	84	30.1	186	52.1	270	42.5
Less than 37	161	57.7	62	17.4	223	35.1
Department						
Emergency out hospital	141	53.4	93	28.4	234	39.6
Emergency in hospital	123	46.6	234	71.6	357	60.4
Professional antiquity						
Less than 8 years	150	53.6	118	32.9	366	57.5
8–15 years	102	36.4	194	54.0	270	42.5
More than 15 years	28	10.0	47	13.1	268	41.9
Type of contract						
Temporary	136	49.1	230	64.1	296	46.3
Permanent	141	50.9	129	35.9	75	11.7
Number of monthly working hours						
Less than 141 h	97	35.8	83	23.6	180	28.9
131–150 h	94	34.7	68	19.4	162	26.0
More than 150 h	80	29.5	200	57.0	280	45.0
Children's age						
No of children	143	51.3	69	19.3	212	33.3
Less than 3 years	33	11.8	71	19.9	104	16.4
3 years or more	103	36.9	217	60.8	320	50.3
Marital relationship						
Very good	98	35.1	142	39.8	240	37.7
Not very good	86	30.8	168	47.1	254	39.9
No partner	95	34.1	47	13.2	142	22.3
Domestic chores (hours per week)						
0 h	9	3.3	13	3.7	22	3.5
1–5 h	134	49.1	205	58.2	339	54.2
More than 5 h	130	47.6	134	38.1	264	42.2

**Table 2** Multivariate odds ratio and 95% confidence intervals for the association between MBI dimensions (emotional exhaustion, personal accomplishment, depersonalisation) and psychosocial work environment

	Emotional exhaustion OR (CI 95%)	Personal accomplishment OR (CI 95%)	Depersonalisation OR (CI 95%)
Professional category			
Nurses	1.00	1.00	1.00
Doctors	1.75 (0.98–3.11)	1.95 (1.19–3.21)	1.01 (0.63–1.63)
Psychological-emotional demands			
Low	1.00	1.00	1.00
High	4.66 (2.75–2.63)	0.79 (0.50–1.25)	1.48 (0.96–2.29)
Job control			
High	1.00	1.00	1.00
Low	1.65 (1.04–2.63)	2.55 (1.66–3.94)	1.15 (0.77–1.73)
Supervisors' social support			
High	1.00	1.00	1.00
Low	1.64 (1.04–2.59)	0.97 (0.64–1.46)	1.25 (0.84–1.85)
Co-workers' social support			
High	1.00	1.00	1.00
Low	1.54 (0.91–2.61)	1.15 (0.69–1.91)	1.00 (0.63–1.62)
Dynamic physical workload			
Low	1.00	1.00	1.00
High	1.13 (0.70–1.81)	1.03 (0.67–1.59)	0.83 (0.55–1.25)
Static physical workload			
Low	1.00	1.00	1.00
High	1.33 (0.79–2.27)	0.81(0.51–1.28)	1.15 (0.74–1.79)

Odds ratio adjusted by department professional antiquity, Type of contract, number of monthly working hours, sex, age, children's age, marital relationships, weekly domestic chores hours

nurses staff of Spain. The findings provide support for the existence of a negative association between four dimensions of demand-control model of Karasek and Theorell (1990) and EE. Low job control and psychological demands have a negative influence on PA and DP, respectively. However, there is no evidence of a negative effect of physical workload on burnout syndrome. With respect to the possible differential effect of psychosocial work environment between doctors and nurses, there are no differences on two dimensions of burnout syndrome (PA and DP). However, the EE dimension is negatively influenced by low job control among doctors but not among nurses. The rest of psychosocial risk factors (psychological demands, supervisors' social support, co-workers' social support) have the same influence on the EE among doctors and nurses. Moreover, prevalence of EE and PA was higher among doctors than nurses.

Previous studies have suggested that stressful job conditions, characterised by low job control, high psychological demands and low social support increase the risk of poor mental health (psychological distress, depression, anxiety and fatigue Cheng et al. 2000; Spector 1999; Lerner et al. 1994). In the same way, in this study, exposure to high levels of psychological demands, low job control, low supervisors' social support and low co-workers' social support increase the risk of high EE. However, there is less influence of

psychosocial risk factors in other two MBI dimensions: PA and LP, provided that only low job control increases the risk of low PA. This could be explained because the EE is the most sensitive to the presence of psychosocial risk factors at work (Schaufeli 1999; Greenglass et al. 1998). Greenglass et al (1998) pointed out that EE can be considered as the core symptom of burnout and it is the component which is the most responsive to the psychosocial work environment.

In this article no statistically significant association was found between static and dynamic physical workload and burnout syndrome. Mauser-Dorsch and Eaton (2000) do not find that physical workload has negative influence on different depression indicators. Also Laaksonen et al. (2006) found that when physical workload was adjusted with psychosocial work environment, its association with mental health was weakened.

In this study we did not find a differential effect of psychosocial work environment on burnout syndrome (PA and DP dimensions) between nurses and doctors. However, exposure to low job control increases the risk of EE among doctors but not among nurses. As some authors highlight, doctors' specific work characteristics imply a greater job control as compared to the job control among nurses (Spector 1999). This could explain why exposure to low job control has a negative impact on EE only among doctors and not among

nurses; provided that doctors require more job control to perform their duties properly.

Few studies have focused on comparing the prevalence of burnout syndrome among doctors and nurses. In this study, the prevalence of EE and PA was higher among doctors. Schaufeli (1999) compared the prevalence of burnout syndrome among doctors and nurses and also found that doctors presented worse levels of the three dimensions of this syndrome. This finding could be explained, as indicated in the results above, because doctors' working conditions were more stressful (higher level of exposure to psychological demands, low job control and low social support at work). The prevalence of high EE and high DP was similar to the one obtained by Ramirez et al. (1996) in a sample of oncologists. However, the prevalence of low PA was higher (56.2%) compared to the prevalence obtained in two samples of oncology doctors (37 and 48%, respectively) (Ramírez et al. 1996; Grunfeld et al. 2000). This fact could be explained by different management policies of medical emergency staff in Spain (i.e. lower rewards professionals, etc.).

The response rate is acceptable for a study carried out through postal mail and is comparable to other studies carried out among health care staff (Grunfeld et al. 2000; Weinberg and Creed 2000; Oates and Oates 1995).

In considering these interpretations, it is important to point out some possible limitations of this study. The cross-sectional nature of the data leaves inferences about the causal direction of the association between psychosocial work environment and burnout syndrome. Respondents with burnout syndrome may have reported psychological work environment in a negative way. Nevertheless, studies with a longitudinal design find an association between burnout and low social support, low job control and high job psychological demands (Borritz et al. 2006).

Results in this study evidence that psychosocial risk factors (psychological demands, job control, supervisors' social support and co-workers' social support) have a negative influence on EE. For low PA, the only influence is job control. However, there is no statistically significant association between the four psychosocial work environmental risk factors and DP. Therefore, further research should be carried out to evaluate the effect of psychosocial work environment on burnout (using Karasek and Theorell control-demand model), and, more precisely, to determine if the DP dimension is influenced only by individual and personal factors and not by psychosocial work environmental risk factors. If such hypotheses were confirmed, it would not be necessary to use this dimension

when we need to surveillance the effect of psychosocial work environment on burnout syndrome. Also, given the considerable impact of burnout syndrome on the individual worker, job productivity and society, these findings underline the need for interventions to ameliorate the work organisation of emergency medical and nursing staff.

**Acknowledgments** Study partially financed by five research grants: two from "Fondo de Investigaciones Sanitarias" (Ministry of Health) (99/0704 and 00/0686)", one from "Instituto de Salud Carlos III": Gender and Health Network (G03/42) and two from "Conselleria de Sanitat. Generalitat Valenciana" (11/2000 and 2001).

## References

- Artazcoz Lazcano L, Borell C, Benach J (2001) Gender inequalities in health among workers: the relation with family demands. *J Epidemiol Community Health* 55:639–647
- Borritz M, Bültmann U, Rugulies R, Christensen K, Villadsen E, Kristensen T (2006) Psychosocial work characteristics as predictors for burnout: findings from 3-year follow up of the PUMA study. *J Occup Environ Med* 47:1015–1025
- Burbeck R, Coomber S, Robinson S, Todd C (2004) Occupational stress in consultants in accident emergency medicine: a national survey of levels of stress at work. *Emerg Med* 19:234–238
- Cheng Y, Kawachi I, Coakley E, Schwartz J, Colditz G (2000) Association between psychosocial work characteristics and health functioning in American women: prospective study. *BMJ* 320:1432–1436
- Escribà-Agüir V, Mas R, Flores-Reus E (2001) Validación del job content questionnaire en personal de enfermería hospitalario. *Gac Sanit* 15:142–149
- Escribà-Agüir V, Mas R, Romito P, Saurel-Cubizolles M (1999) Psychological distress of new Spanish mothers. *Eur J Public Health* 9:294–299
- Gillespie M, Melby V (2003) Burnout among nursing staff in accident and emergency and acute medicine: a comparative study. *J Clin Nurs* 12: 842–851
- Graham J, Ramírez A, Field S, Richards M (2000) Job stress and satisfaction among clinical radiologists. *Clin Radiol* 55:182–185
- Greenglass E, Burke R, Konarski R (1998) Components of burnout, resources, and gender-related differences. *J Appl Soc Psychol* 28:1088–1106
- Grunfeld E, Whelan T, Zitzelsberger L, Willan R, Montesanto B, Evans W (2000) Cancer care workers in Ontario: prevalence of burnout, job stress and job satisfaction. *CMAJ* 163:166–169
- Imai H, Nakao H, Tschia M, Kuroda Y, Katoh T (2004) Burnout and work environments of public health nurses involved in mental health care. *Occup Environ Med* 61:764–768
- Karasek R, Theorell T (1990) Healthy work stress, productivity, and the reconstruction of working life. Basic Books, New York, pp 348
- Kluger M, Townend K, Laidlaw T (2003) Job satisfaction, stress and burnout in Australian specialist anaesthetists. *Anaesthesia* 58:339–345

- Laaksonen M, Rahkonen O, Martikainen P, Lahelma E (2006) Associations of psychosocial working conditions with self-rated general health and mental health among municipal employees. *Int Arch Occup Environ Health* 79:205–212
- Lerner D, Levine S, Malspeis S, D'Agostino R (1994) Job strain and health-related quality of life in a national sample. *Am J Public Health* 84:1580–1585
- Maslach C, Jackson S (1986) Maslach burnout inventory. Consulting Psychologist Press, Palo Alto
- Mauser-Dorsch H, Eaton W (2000) Psychosocial work environment and depression: epidemiologic assessment of the demand-control model. *Am J Public Health* 90:1765–1769
- Oates R, Oates P (1995) Stress and mental health in neonatal intensive care units. *Arch Dis Child* 72:107–110
- Ramírez A, Graham J, Richards M, Cull A, Gregory W, Leaning M, Snashal D, Timothy A (1995) Burnout and psychiatric disorder among cancer clinicians. *Br J Cancer* 71:1263–1269
- Ramírez A, Graham J, Richards M, Gregory W (1996) Mental health of hospital consultants: the effects of stress and satisfaction at work. *Lancet* 347:724–728
- Schaufeli W (1999) Burnout. In: Firth-Cozens J, Payne R (eds) *Stress in Health Professionals*, John Wiley & Sons, New York, pp 17–32
- Seisdedos N (1997) MBI. Inventario “BURNOUT” de Maslach. Síndrome del “quemado” por estrés laboral asistencial, TEA ediciones, SA, Madrid, 36
- Sibbald B, Bojke C, Gravelle H (2003) National survey of job satisfaction and retirement intentions among general practitioners in England. *BMJ* 326:22
- Spector P (1999) Individual differences in the job stress process of health care professionals. In: Firth-Cozens J, Payne R (eds) *Stress in health professionals*, John Wiley & Sons, New York, pp 33–42
- Stansfeld S, Fuhrer R, Shipley M, Marmot M (1999) Work characteristics predict psychiatric disorder: prospective results from the whitehall II study. *Occup Environ Med* 56:302–307
- Varga E, Pérez-Urdániz, Fernández-Canti G (1996) Burnout syndrome in general hospital doctors. *Eur Psychiatr* 10:207–213
- Visser M, Smets E, Oort F, De Haes H (2003) Stress, satisfaction and burnout among Dutch medical specialists. *CMAJ* 168:271–275
- Weibel L, Gabrion I, Aaussedat M, Kreutz G (2003) Work-related stress in an emergency medical dispatch center. *Ann Emerg Med* 41:500–506
- Weinberg A, Creed F (2000) Stress and psychiatric disorder in healthcare professionals and hospital staff. *Lancet* 355:533–537
- Williams S, Dale J, Glucksman E, Welesley A (1997) Senior house officers' work related stressors, psychological distress, and confidence in performing clinical tasks in accident and emergency: a questionnaire study. *BMJ* 314:713–718