
DIFFERENCES IN BURNOUT, WORK DEMANDS AND TEAM WORK BETWEEN CROATIAN AND MACEDONIAN HOSPITAL NURSES

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ABSTRACT

This study was conducted in 2011 in two hospitals from Croatia and Macedonia to examine: differences in burnout, work demands, and team work between Croatian (n=138) and Macedonian (n=185) nurses; associations between work demands, team work, and burnout; moderation effect of team work on the relationship between emotional demands and depersonalization in Croatian nurses, and separate moderation effects of emotional demands and team work on the relationship between age and depersonalization in Macedonian nurses. Burnout, work demands, and team work were measured with Maslach Burnout Inventory, Hospital Experience Scale, and Hospital Survey on Patient Safety Culture, respectively. In order to examine the role of work demands and team work, a hierarchical multiple regression models were tested for emotional exhaustion and depersonalization. We also fit regression models predicting burnout dimensions from both predictor and moderator variables. Croatian nurses reported higher levels of depersonalization, organizational and emotional work demands, while Macedonian nurses reported higher levels of physical work demands and team work. Emotional work demands predicted increased emotional exhaustion and depersonalization, while team work negatively predicted emotional exhaustion and depersonalization in both groups. Team work showed a buffering effect on the development of depersonalisation via emotional demands (in Croatian nurses) or through aging (in Macedonian nurses). In Macedonian nurses emotional demands showed an enhancing effect on the development of depersonalization via aging. Actual study fills the gap in knowledge about burnout in nurses from different South-eastern Europe countries (Albania, Bosnia and Herzegovina, Bulgaria,

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Croatia, Cyprus, Greece, Kosovo, Moldova, Macedonia, Montenegro, Romania, Serbia, Slovenia, and Turkey) and confirms the need for balanced job demands-resources interaction in order to prevent burnout in hospital nurses.

KEYWORDS: *burnout, work demands, team work, moderation, nurses*

INTRODUCTION

Burnout conceptually refers to psychological syndrome in response to chronic emotional and interpersonal workplace stressors (Maslach & Leiter, 1997; Leiter & Maslach, 2000; Maslach, Schaufeli, & Leiter, 2001). The core components of this syndrome are emotional exhaustion (an overwhelming exhaustion and feelings of being overextended by the demands of the job) and depersonalization (feelings of detachment from the job and cynical response to the recipients of care) (Maslach et al., 2001). The third burnout dimension - reduced personal accomplishment has been described as a personality variable and it correlates weakly with the other burnout components and with known burnout correlates (Cordes & Dougherty, 1993; Kalliath, O'Driscoll, Gillespie, & Bluedom, 2000). Therefore, recent studies focused mostly on emotional exhaustion and depersonalization (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Maslach & Leiter, 2008; Purvanova & Muros, 2010).

The job demands/resources model of stress of Demerouti and Bakker (JD-R model) assumes that every occupation has its own specific risk factors associated with work related stress (Demerouti & Bakker, 2011). JD-R model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) explains the development of burnout by two processes: demanding aspects of work (high job demands) leading to overtaxing and exhaustions; and lack of resources that result in withdrawal behavior (depersonalization) and disengagement. The model applied to different occupational settings (e.g., hospital settings) defines job demands as those physical (e.g., responsibility for too many patients, very fast work), social, emotional, cognitive, and organizational aspects of the work that require prolonged physical and/or psychological (cognitive and emotional) efforts and skills in workers and are therefore associated with specific physiological and/or psychological changes, such as exhaustion and depersonalization. According to the JD-R model (Demerouti et al., 2001), job resources refer to certain physical, psychological, social or organizational aspects of the work that help workers in achieving work goals, reducing job demands, and stimulating personal growth and development and protect them from disengagement. Job resources could be found at the organizational (e.g., salary, job security) or interpersonal level (e.g., team work, supervisor and coworker support, organizational culture), at the specific job position (e.g., participation in decision making), and at the level of the task (e.g., autonomy, performance feedback) (Demerouti & Bakker, 2011).

The presence of proper feedback, adequate supervisor and coworker support, as well as appropriate team work, as specific forms of job resources, leads to high job engagement and low level of depersonalization, while their absence increases the level of cynical attitude towards work (Demerouti & Bakker, 2011; Demerouti et al., 2001; Schaufeli, Bakker, & Van Rhenen, 2009).

Additionally, the development of job strain (including burnout) and motivation (job engagement) depends on the interaction between job demands and job resources and different resources (including team work) may buffer the impact of job demands on burnout (Demerouti & Bakker, 2011; Bakker, Demerouti & Euwema, 2005; Xanthopoulou et al., 2007). The types of job demands and resources that are important in specific setting and certain job profile depend on the characteristics of the setting (e.g., hospital) and job characteristics (e.g., nurse) (Demerouti & Bakker, 2011).

It is well established that within healthcare settings, effective teamwork can promote job satisfaction, minimize the impact of job demands, and has positive effect on job engagement (Doulougeri, Montgomery, & Panagopoulou, 2014; Vilà Falgueras et al., 2014; Firth-Cozens, 2001; O'Mahony, 2011). Teamwork refers to specific cooperative process that allows team members to develop effective, mutual relationships in achieving team goals through sharing knowledge and skills (Scarnati, 2001; Harris & Harris, 1996). Teamwork is critical for the delivery of health care services and health professionals (HPs) must coordinate their activities to deliver safe and efficient patient care (Baker, Day, & Salas, 2006).

The aim of our study is to analyze the phenomenon and relationships between different job and psychological characteristics in nurses from two hospitals, one in Croatia and one in Macedonia. The health care system in Croatia has recently undergone fundamental structural changes in its financing, organization and ownership. According to the Croatian Health Service Yearbook for 2006, most of the nurses (over 80 %) in Croatia work in secondary or tertiary care (i.e., hospital, clinical hospital centre or university hospital). The reforms of the Croatian health care system began in 1990 and quality of health care has been improving in accordance with the World Health Organization (WHO) and the European Union (EU) recommendations. Unlike most other countries in the Central and Eastern European Region, Croatia has sought reform through restoring some central control as well as strengthening the accountability of health care service providers. The training of nurses has recently undergone significant changes as well. It is envisaged that the education reforms will lead to a higher income for nursing staff and that the nursing profession will benefit from increased autonomy, increased number of qualified nurses and improved training.

The health care system in the Republic of Macedonia faces continuous reforms oriented towards improving the quality of patient care. Both health care and social reforms (driven by EU accession targets) have raised complex hospital reorganisation issues that have resulted in increased demands in hospital HPs (Mijakoski, 2009; Karadzinska-Bislimovska et al., 2013). The hospital in Skopje in which we conducted the research was previously a Military hospital. Nowadays, it is transformed and it is functioning as a general hospital providing health care to the general population at the secondary and tertiary level. The management staff of the hospital continued to apply good organization and management standards as inherited from previous times, as well as high level of discipline, respect of formal and informal hierarchy, teamwork, excellent interpersonal relationships, good communication, and cooperation between HPs and between different departments (Karadzinska-Bislimovska et al., 2013). Despite that, hospital HPs are now facing increased work demands reflected by significantly increased number of patients served. However, a previous qualitative study conducted in the same hospital (Karadzinska-Bislimovska et al., 2013) emphasized potential protective workplace factors (job resources), such as appropriate physical working conditions, support from superiors and co-workers, team work, independence in decision-making, excellent interpersonal relationships, quick and correct diagnosis, therapeutic success, and positive feedback from patients. It is well known that these factors protect workers from exhaustion and disengagement.

The actual paper investigates the concepts of burnout, work demands, and team work taking into consideration the national context in each of the analysed South-eastern Europe (SEE) countries. The differences between Croatian and Macedonian context, especially in the area of health care system and its reforms, were used as a starting point that initiated ideas about possible differences in job and psychological characteristics in nurses from different SEE countries.

Numerous studies have assessed work related stress and burnout among HPs in many countries and most of the studies focused on nurses (Bakker, Le Blanc, & Schaufeli, 2005; Garrett & McDaniel, 2001; Laschinger, Shamian, & Thomson, 2001; Sheward et al., 2005; Kalliath & Morris, 2002). However, very few studies have examined differences in burnout between nurses working in hospitals from different countries in SEE (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Greece, Kosovo, Moldova, Macedonia, Montenegro, Romania, Serbia, Slovenia and Turkey). Even fewer studies have examined work demands and team work as predictors of emotional exhaustion and depersonalization in the region of SEE. Also, there is poor pool of data for SEE countries concerning moderation effect of certain variables on the relationship between predictors and burnout dimensions.

In the present study we tested the following hypotheses:

- There are differences in burnout, work demands, and team work between Croatian and Macedonian hospital nurses,
- Team work has a buffering effect on the development of depersonalisation via emotional demands in Croatian nurses,
- Emotional demands have an enhancing effect on the development of depersonalisation through aging in Macedonian nurses, and
- Team work has a buffering effect on the development of depersonalisation via aging in Macedonian nurses.

METHODS

Participants

Completed surveys were returned by 138 nurses from Croatian hospital and 185 nurses from Macedonian hospital. The response rate was 55.2% for Croatian hospital and 80.4% for Macedonian hospital.

Croatian participants were significantly older than Macedonian participants (42.16 ± 10.84 vs. 37.55 ± 9.0 years, $t(263)=4.06$, $p<0.001$) and they had significantly longer hospital (258.7 ± 130.82 vs. 161.46 ± 112.22 months, $t(272)=6.81$, $p<0.001$) and unit (209.82 ± 135.29 vs. 123.34 ± 101.19 months, $t(253)=6.07$, $p<0.001$) tenure. There was no significant difference between two groups according to the working hours per week (Croatia 43.98 ± 5.71 vs. Macedonia 44.13 ± 7.04 h/week, $t(319)=-0.201$, $p=0.841$).

The majority of participants were female within both groups (Croatia vs. Macedonia, 86.2% vs. 86.3%, $\chi^2=0.001$, $p=0.978$). Both groups were not significantly different according to marital status (married nurses, Croatia vs. Macedonia, 79.7% vs. 71.9%, $\chi^2=5.27$, $p=0.261$) and type of employment (employed with full-time contract, Croatia vs. Macedonia, 92.8% vs. 95.7%, $\chi^2=1.97$, $p=0.374$).

Procedure

This study was conducted in 2011 in two general teaching hospitals, one from Croatia and one from Macedonia. The most important criteria for selecting hospitals were to have stable management and to represent the most typical hospital organisational system for both regions. Both hospitals provide inpatient health care, specialist health care with specialist diagnostics (outpatient) and laboratory tests. The hospital in Croatia has 250 beds contracted with health insurance fund and it has about 370 employed persons. The total number of employed persons in the Macedonian hospital is about 420 and it has about 500 beds.

Prior to the research, ethical approvals were granted by the hospitals' ethics committees. Contact persons were designated in both participating hospitals. Self-administered questionnaires (hard copies) were distributed to all nurses in the target

hospitals (total of 250 nurses in Croatian and 230 nurses in Macedonian hospital). Each questionnaire was prefaced with an invitation letter explaining the objectives of the study. Questionnaires were returned anonymously in sealed envelopes to protect participants' privacy. Participation in the study was voluntary.

Instruments

Burnout was assessed with the Maslach Burnout Inventory (MBI) (Maslach, Schaufeli & Leiter, 2001). Emotional exhaustion (nine items, e.g., I feel emotionally drained from my work; I feel burned out by my work) and depersonalisation (five items, e.g., I feel I treat some patients as if they were impersonal objects) subscales were used, and measured with a 7-point Likert scale (0 = never to 6 every day). Emotional exhaustion is described by the feelings of overwhelming exhaustion, lack of energy, and depletion of emotional resources and the person feels used up. Depersonalization is interpersonal dimension of burnout that refers to the feelings of frustration, anger, cynicism, and excessively detached response to other people. The MBI is one of the most popular burnout questionnaires with clinically validated data. Responses are added to form a score for each subscale, thus giving each participant scores for the two components of burnout. The higher the score in one dimension means the higher level of burnout.

Work demands were assessed using the Hospital Experience Scale (HES). HES was constructed and developed for the purposes of FP7 ORCAB Project (<http://orcab.web.auth.gr/>) through qualitative analysis of focus groups. The items were categorised into four types of work demands: physical workload (seven items, e.g., I am responsible for too many patients in hospital rounds), organisational (six items, e.g., The roles in my department are not clear/ambiguous), emotional (six items, e.g., I have to deal with verbally abusive patients) and cognitive (five items, e.g., I have to take decisions when I don't have all the information I need) work demands. Extensive information on the validation of the HES can be provided upon request. Participants were asked to indicate their level of agreement with the items (1 = never to 5 = always). Points for statements relating to each of the work demands types were averaged to derive the four types of work demands.

Team work (four items, e.g., When one area in this unit gets really busy, others help out) was measured with the Hospital Survey on Patient Safety Culture, developed by the US Agency for Healthcare Research and Quality (<http://www.ahrq.gov/qual/patientsafetyculture/hospcult1.htm>). Participants were asked to indicate their level of agreement with the items (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree) and the mean score was calculated for this variable.

Prior to the actual study, within the pilot phase of FP7 ORCAB Project (<http://orcab.web.auth.gr/>), the questionnaires were validated among the sample of hospital health professionals from Greece, Turkey, Portugal, Romania, Bulgaria, Croatia, and Macedonia. The questionnaires were administered in-person and

participants were asked to give their feedback on the face validity of the questionnaires, indicating if any of the questions were difficult to read, ambiguous or irrelevant to their work.

Analysis

Bivariate analyses were initially conducted to examine the associations between burnout dimensions, different work demands, and team work. Secondly, in order to examine the role of work demands and team work, controlling for age, working hours per week, and gender, a hierarchical multiple regression models were tested for emotional exhaustion and depersonalization separately for Croatian and Macedonian nurses. Work demands were entered in the first step, while age, working hours per week, gender, and team work were entered in the second step.

After producing hierarchical multiple regression models we used the most significant predictors of burnout dimensions to fit regression models predicting the outcome variable (emotional exhaustion or depersonalization) from both the predictor variable and the moderator variable. Then, we add the interaction effects (of both the predictor variable and the moderator variable) to the previous models and check for a significant R^2 change as well as significant effects by the new interaction terms. The data obtained were used to produce interaction plots for visualizing conditional (moderated) effect of predictor (independent variable) on the outcome (dependent variable).

RESULTS

Series of independent samples t tests showed that Croatian participants demonstrated significantly higher mean values on depersonalization (3.98 vs. 2.47, $mean\ diff(320) = 1.51, p=0.002$), organizational (2.44 vs. 2.23, $mean\ diff(321) = 0.21, p=0.007$), and emotional work demands (2.40 vs. 2.14, $mean\ diff(278) = 0.26, p<0.001$) (see Table 1). On the other hand, Macedonian participants showed significantly higher mean values for physical work demands (3.32 vs. 3.01, $mean\ diff(321) = -0.32, p<0.001$) and team work (3.93 vs. 3.46, $mean\ diff(253) = -0.47, p<0.001$) (see Table 1).

Table 1.

Descriptive statistics of burnout, work demands, and team work and differences between Croatian and Macedonian hospital nurses.

	Country	Mean	SD	Mean diff. (95% CI)	<i>p</i>
Burnout - Emotional Exhaustion	Croatia	17.43	11.00	1.86	0.142
	Macedonia	15.57	11.41	(-0.63, 4.35)	
Burnout - Depersonalization	Croatia	3.98	4.57	1.51	0.002
	Macedonia	2.47	4.07	(0.56, 2.46)	
Team work	Croatia	3.46	1.01	-0.47	0.000
	Macedonia	3.93	0.80	(-0.67, -0.26)	
Work demands - Physical demands	Croatia	3.01	0.64	-0.32	0.000
	Macedonia	3.32	0.66	(-0.46, -0.17)	
Work demands - Organizational demands	Croatia	2.44	0.65	0.21	0.007
	Macedonia	2.23	0.72	(0.06, 0.36)	
Work demands - Emotional demands	Croatia	2.40	0.64	0.26	0.000
	Macedonia	2.14	0.58	(0.12, 0.40)	
Work demands - Cognitive demands	Croatia	2.52	0.56	-0.14	0.055
	Macedonia	2.66	0.73	(-0.28, 0.00)	

Both emotional exhaustion and depersonalization were positively correlated with organizational, emotional, and cognitive work demands in Croatian nurses (see Table 2). On the other hand, in Macedonian nurses emotional exhaustion was positively correlated with all types of work demands, while depersonalization was positively correlated with only physical, organizational, and emotional work demands (see Table 2).

We found significant negative correlation of both burnout dimensions with team work within two study groups. Team work was also negatively correlated with physical and organizational work demands in Croatian participants as well as with organizational, emotional, and cognitive work demands in Macedonian subjects (see Table 2).

Table 2.
Correlations of analyzed variables in study nurses.

Croatian nurses (N=138)	1	2	3	4	5	6	7
1. Emotional Exhaustion	0.848						
2. Depersonalization	.521**	0.720					
3. Team work	-.323**	-.292**	0.857				
4. Work demands Physical demands	.120	.117	-.238**	0.701			
5. Work demands Organizational demands	.313**	.224**	-.257**	.428**	0.720		
6. Work demands Emotional demands	.356**	.266**	-.149	.254**	.418**	0.701	
7. Work demands Cognitive demands	.251**	.191*	-.161	.357**	.343**	.279**	0.725
Macedonian nurses (N=185)	1	2	3	4	5	6	
1. Emotional Exhaustion	0.870						
2. Depersonalization	.625**	0.703					
3. Team work	-.307**	-.252**	0.834				
4. Work demands Physical demands	.324**	.205**	-.123	0.713			
5. Work demands Organizational demands	.344**	.271**	-.323**	.490**	0.759		
6. Work demands Emotional demands	.332**	.284**	-.193**	.398**	.512**	0.703	
7. Work demands Cognitive demands	.308**	.133	-.209**	.424**	.554**	.413**	0.701

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Note. Cronbach's alpha on the diagonal.

Table 3 shows the standardized beta coefficients for the independent predictors of emotional exhaustion in Croatian nurses. Results showed that emotional work demands ($\beta = .24, p < 0.01$) positively predicted emotional exhaustion, while team work ($\beta = -.26, p < 0.01$) was significant negative predictor of this burnout dimension (R^2 for the model = .241).

Table 3.
Hierarchical multiple regression model for emotional exhaustion in Croatian nurses.

Emotional Exhaustion - Croatia		B	SE	95% CI for B		Beta	R ²
				Lower	Upper		
Step 1	Physical Demands	-1.33	1.54	-4.38	1.73	-.08	0.177
	Organizational Demands	3.21	1.59	0.06	6.36	.19*	
	Emotional Demands	4.41	1.51	1.43	7.39	.26**	
	Cognitive Demands	2.76	1.70	-0.61	6.13	.14	
	Constant	-3.92	5.23	-14.27	6.43		
Step 2	Physical Demands	-1.90	1.52	-4.9	1.1	-.11	0.241
	Organizational Demands	2.31	1.58	-0.83	5.44	.14	
	Emotional Demands	4.04	1.49	1.09	6.99	.24**	
	Cognitive Demands	2.69	1.69	-0.65	6.04	.14	
	Age	0.07	0.08	-0.09	0.23	.07	
	Working hours per week	0.01	0.16	-0.3	0.32	.01	
	Gender	0.09	2.54	-4.95	5.12	.003	
	Team work	-2.8	0.87	-4.52	-1.08	-.26**	
Constant	7.34	9.59	-11.63	26.31			

R² = .177 for Step 1; Δ R² = .063 for Step 2 (P<0.05)

* P<0.05, ** P<0.01

Table 4 demonstrates that physical ($\beta = .16, p<0.05$) and emotional demands ($\beta = .17, p<0.05$) and age ($\beta = .24, p<0.001$) positively predicted emotional exhaustion in Macedonian nurses, whereas team work ($\beta = -.20, p<0.01$) was significant negative predictor (R² for the model = .308).

Table 4.
Hierarchical multiple regression model for emotional exhaustion in Macedonian nurses.

Emotional Exhaustion - Macedonia		B	SE	95% CI for B		Beta	R ²
				Lower	Upper		
Step 1	Physical Demands	2.86	1.41	0.08	5.65	.17*	0.193
	Organizational Demands	2.25	1.47	-0.66	5.16	.14	
	Emotional Demands	3.52	1.61	0.34	6.70	.18*	
	Cognitive Demands	1.22	1.33	-1.41	3.84	.08	
	Constant	-9.65	4.36	-18.26	-1.04		
Step 2	Physical Demands	2.83	1.37	0.12	5.54	.16*	0.308
	Organizational Demands	1.43	1.42	-1.38	4.25	.09	
	Emotional Demands	3.35	1.52	0.34	6.35	.17*	
	Cognitive Demands	-0.11	1.28	-2.63	2.41	-.01	
	Age	0.31	0.09	0.14	0.48	.24***	
	Working hours per week	-0.05	0.11	-0.26	0.17	-.03	
	Gender	4.19	2.25	-0.25	8.63	.12	
	Team work	-2.80	0.97	-4.71	-0.90	-.20**	
Constant	-10.48	8.87	-27.99	7.04			

R² = .193 for Step 1; Δ R² = .116 for Step 2 (P<0.001)

* P<0.05, ** P<0.01, *** P<0.001

The standardized beta coefficients for the independent predictors of depersonalization in Croatian and Macedonian participants are shown in Table 5 and Table 6, respectively. Emotional demands ($\beta = .21, p < 0.05$) and team work ($\beta = -.24, p < 0.01$) were significant predictors of depersonalization in Croatian nurses (R^2 for the model = .166). On the other hand, besides emotional demands ($\beta = .23, p < 0.01$) and team work ($\beta = -.17, p < 0.05$), age ($\beta = .23, p < 0.01$) significantly predicted depersonalization in Macedonian nurses (R^2 for the model = .22).

Table 5.

Hierarchical multiple regression model for depersonalization in Croatian nurses.

Depersonalization - Croatia		B	SE	95% CI for B		Beta	R^2
				Lower	Upper		
Step 1	Physical Demands	-0.13	0.67	-1.46	1.20	-.02	0.095
	Organizational Demands	0.81	0.70	-0.56	2.18	.12	
	Emotional Demands	1.38	0.66	0.08	2.68	.19*	
	Cognitive Demands	0.85	0.74	-0.63	2.31	0.10	
	Constant	-3.04	2.28	-7.56	1.47		
Step 2	Physical Demands	-0.44	0.66	-1.75	0.87	-.06	0.166
	Organizational Demands	0.55	0.69	-0.82	1.91	.08	
	Emotional Demands	1.46	0.65	0.17	2.74	.21*	
	Cognitive Demands	0.52	0.74	-0.94	1.97	.06	
	Age	-0.03	0.04	-0.10	0.04	-.07	
	Working hours per week	0.08	0.07	-0.05	0.22	.10	
	Gender	-0.05	1.12	-2.25	2.14	-.004	
	Team work	-1.07	0.38	-1.82	-0.33	-.24**	
Constant	0.57	4.18	-7.69	8.84			

$R^2 = .095$ for Step 1; $\Delta R^2 = .071$ for Step 2 ($P < 0.05$)

* $P < 0.05$, ** $P < 0.01$

Table 6.
Hierarchical multiple regression model for depersonalization in Macedonian nurses.

Depersonalization - Macedonia		B	SE	95% CI for B		Beta	R^2
				Lower	Upper		
Step 1	Physical Demands	0.64	0.53	-0.40	1.68	.10	0.121
	Organizational Demands	0.92	0.55	-0.16	2.01	.16	
	Emotional Demands	1.55	0.60	0.37	2.74	.22*	
	Cognitive Demands	-0.58	0.50	-1.56	0.41	-.10	
	Constant	-3.54	1.63	-6.76	-0.32		
Step 2	Physical Demands	0.32	0.52	-0.71	1.35	.05	0.222
	Organizational Demands	0.69	0.54	-0.38	1.75	.12	
	Emotional Demands	1.58	0.58	0.44	2.72	.23**	
	Cognitive Demands	-0.98	0.49	-1.94	0.02	-.17	
	Age	0.11	0.03	0.04	0.17	.23**	
	Working hours per week	0.08	0.04	-0.004	0.16	.13	
	Gender	0.96	0.87	-0.76	2.68	.08	
	Team work	-0.86	0.37	-1.58	-0.13	-.17*	
Constant	-6.71	3.39	-13.41	-0.02			

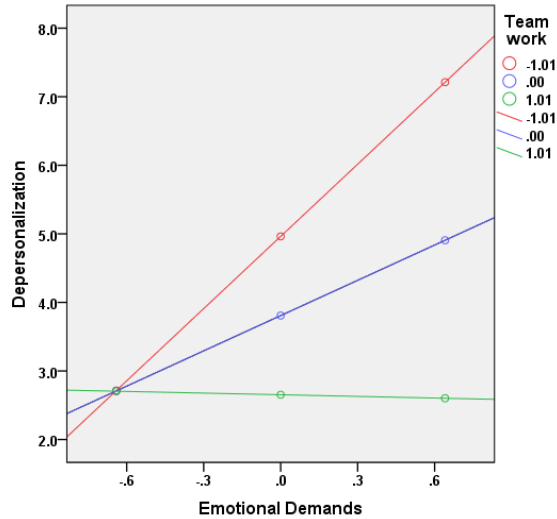
$R^2 = .121$ for Step 1; $\Delta R^2 = .101$ for Step 2 ($P < 0.001$)

* $P < 0.05$, ** $P < 0.01$

For depersonalization dimension in Croatian nurses we found that the addition of the interaction term between team work and emotional demands to the regression model, it accounted for a significant proportion of the variance in depersonalization ($\Delta R^2 = .07$, $\Delta F(1, 134) = 11.11$, $p = .001$, $\beta = -1.21$, $t = -3.33$, $p = .001$). Examination of the interaction plot (Figure 1) showed a buffering effect, where increasing the team work would decrease the effect of the emotional demands on the depersonalization. At low emotional demands, depersonalization was similar for low, average, or high team work values. Nurses showing high emotional demands with low scoring on the team work scale had the highest depersonalization.

Figure 1.

Interaction plot showing buffering effect of the team work on the development of depersonalisation via emotional demands in Croatian nurses.



Moderation analysis for the effect of team work on the development of depersonalization via emotional demands in Croatian nurses is shown in Table 7. The interaction is significant ($\beta = -1.77$, 95% CI [-3.44, -0.1], $t = -2.09$, $p < 0.05$), indicating that the relationship between emotional demands and depersonalization is moderated by team work in Croatian nurses.

Table 7.

Moderation analysis for the effect of team work on the development of depersonalization via emotional demands in Croatian nurses.

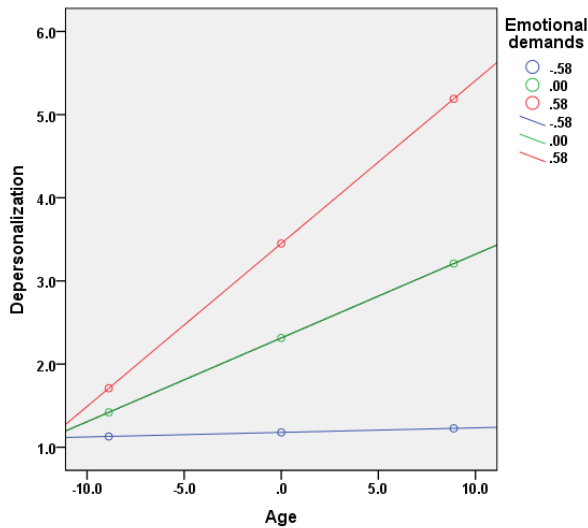
	Beta (95% CI)	SE Beta	<i>t</i>	<i>p</i>
Constant	3.81 (3.14, 4.48)	0.34	11.19	<0.001
Team work	-1.14 (-2.03, -0.25)	0.45	-2.52	0.013
Emotional Demands	1.71 (0.43, 3.002)	0.65	2.64	0.009
Team work x Emotional Demands	-1.77 (-3.44, -0.1)	0.85	-2.09	0.038

Note. $R^2 = .2$

On the other hand, for depersonalization dimension in Macedonian nurses we found that the addition of the interaction term between age and emotional demands to the regression model, it accounted for a significant proportion of the variance in depersonalization ($\Delta R^2 = .04$, $\Delta F(1, 178) = 7.55$, $p = .007$, $\beta = 1.25$, $t = 2.75$, $p = .007$). Examination of the interaction plot (Figure 2) showed an enhancing effect, where increasing the emotional demands would increase the effect of the age on the depersonalization. In younger nurses, depersonalization was similar for low, average, or high emotional demands. Older nurses with high emotional demands had the highest depersonalization.

Figure 2.

Interaction plot showing enhancing effect of the emotional demands on the development of depersonalisation via aging in Macedonian nurses.



Moderation analysis for the effect of emotional demands on the development of depersonalization via aging in Macedonian nurses is shown in Table 8. The interaction is significant ($\beta = 0.16$, 95% CI [0.02, 0.31], $t = 2.2$, $p < 0.05$), indicating that the relationship between aging and depersonalization is moderated by emotional demands in Macedonian nurses.

Table 8.
Moderation analysis for the effect of emotional demands on the development of depersonalization via aging in Macedonian nurses.

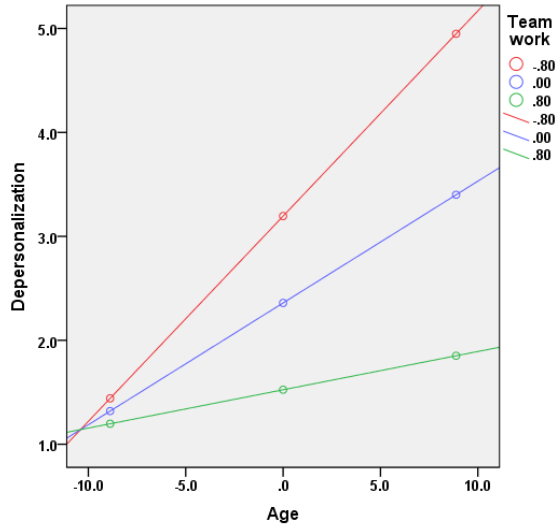
	Beta (95% CI)	SE Beta	t	p
Constant	2.31 (1.8, 2.83)	0.26	8.92	<0.001
Emotional Demands	1.96 (0.96, 2.96)	0.51	3.88	<0.001
Age	0.1 (0.02, 0.18)	0.04	2.5	0.01
Emotional Demands x Age	0.16 (0.02, 0.31)	0.07	2.2	0.029

Note. $R^2 = .17$

Also, for depersonalization dimension in Macedonian nurses we found that the addition of the interaction term between age and team work to the regression model, it accounted for a significant proportion of the variance in depersonalization ($\Delta R^2 = .03$, $\Delta F(1, 178) = 5.83$, $p = .017$, $\beta = -1.1$, $t = -2.41$, $p = .017$). Examination of the interaction plot (Figure 3) showed a buffering effect, where increasing the team work would decrease the effect of the age on the depersonalization. In younger nurses, depersonalization was similar for low, average, or high team work values. Older nurses with low scoring on the team work scale had the highest depersonalization.

Figure 3.

Interaction plot showing buffering effect of the team work on the development of depersonalisation via aging in Macedonian nurses.



Moderation analysis for the effect of team work on the development of depersonalization via aging in Macedonian nurses is shown in Table 9. The interaction is significant ($\beta = -0.14$, 95% CI [-0.3, -0.08], $t = -0.99$, $p < 0.05$), indicating that the relationship between aging and depersonalization is moderated by team work in Macedonian nurses.

Table 9.

Moderation analysis for the effect of team work on the development of depersonalization via aging in Macedonian nurses.

	Beta (95% CI)	SE Beta	t	p
Constant	2.36 (1.83, 2.89)	0.27	8.81	<0.001
Team work	-1.04 (-2.18, -0.09)	0.57	-1.82	0.032
Age	0.12 (0.02, 0.21)	0.05	2.5	0.014
Team work x Age	-0.14 (-0.3, -0.08)	0.1	-0.99	0.031

Note. $R^2 = .15$

DISCUSSION

The objective of this study was to analyze the phenomenon and relationships between different job and psychological characteristics in nurses from two hospitals, one in Croatia and one in Macedonia. The concepts of burnout, work demands, and team work were analyzed separately for each SEE country. The national differences were a starting point and finding relationships between these concepts followed the initial information. The purpose of the actual study was to test hypothesized differences in job and psychological characteristics between Croatian and Macedonian hospital nurses, as well as to test different hypothesized moderation effects in nurses coming from different national contexts.

Croatian nurses reported higher levels of depersonalization, organizational (e.g., strict hierarchy, ambiguous roles, problematic communication) and emotional (e.g., lack of cooperation, lot of competitiveness with the colleagues, emotional involvement in work) work demands, while Macedonian nurses reported higher levels of physical work demands (e.g., excessive workload, time pressure, lack of staff and supplies) and team work. Similar studies analysing differences between nurses working in hospitals from different countries in the SEE Region are rare. The high response rate gave us an opportunity to obtain comprehensive data concerning burnout in nurses working in these hospitals.

Macedonian nurses were found to have higher physical work demands than Croatian nurses, what is obviously the consequence of their objective heavier workload. Notably, Croatian hospital has 250 beds with 250 employed nurses, while Macedonian hospital has about 500 beds and 230 employed nurses. The Croatian hospital is approximately twice smaller in terms of beds (250:500) and Macedonian hospital has smaller number of employed nurses resulting in greater objective workload in Macedonian nurses.

Despite similar levels of emotional exhaustion, Croatian nurses demonstrated higher depersonalization than Macedonian nurses. Within each of the study groups certain types of job demands expressed their significance. In accordance with JD-R Model, jobs with chronic work demands (either work overload or emotional demands or others) exhaust employees' mental and physical resources and may therefore lead to the depletion of energy (emotional exhaustion) (Demerouti & Bakker, 2011). It is noteworthy that team work value was significantly higher in Macedonian nurses. This finding is in line with JD-R Model which assumes that job resources have motivational potential and lead to low levels of depersonalization through specific motivational process (Schaufeli, Bakker, & Van Rhenen, 2009).

Participants in the current study demonstrated lower average emotional exhaustion and depersonalisation scores compared to nurses from 40 units in 20 urban hospitals across the United States (emotional exhaustion - 24.3, depersonalization - 7.4) (Vahey, Aiken, Sloane, Clarke, & Vargas, 2004). In

accordance with JD-R Model, work demands in both groups could increase compensatory efforts in order to maintain performance level (high levels of job engagement as well as low levels of depersonalisation). Within the Macedonian group, significantly higher scores of team work had an additional effect leading to lower level of depersonalisation. This finding suggests the aspects of work that could reduce job demands and the associated physiological and psychological costs (Schaufeli, Bakker, & Van Rhenen, 2009).

Additionally, this study showed that emotional work demands were related to increased emotional exhaustion, while team work negatively predicted emotional exhaustion in both Croatian and Macedonian nurses. The more that nurses experienced emotional work demands, the more they felt emotionally exhausted. On the contrary, the less that nurses felt team work in their unit, the more they experienced emotional exhaustion. The link between different types of work demands and emotional exhaustion have been well established. These relationships are the basis of JD-R Model (Demerouti & Bakker, 2011). Similarly to our findings, a multi-sample study including large number of participants clearly demonstrated that burnout was mainly predicted by job demands but also by lack of job resources (including lack of team work) (Schaufeli & Bakker, 2004). Also, a longitudinal survey revealed that decreases in job resources (i.e., social support, autonomy, feedback, and team work) predict burnout (Schaufeli, Bakker, & Van Rhenen, 2009). In a study examining the effect of the nurse work environment on nurse burnout it was shown that the likelihoods of having higher than average emotional exhaustion and higher than average depersonalization were lower in units with good environments (including good quality of working relationships between nurses and physicians) (Vahey et al., 2004).

In Macedonian nurses, age also positively predicted emotional exhaustion. In other words, the older nurses experienced more emotional exhaustion. In contrast to our findings, the study of Brewer showed that there was a small negative correlation between employee age and emotional exhaustion (Brewer, 2004).

In this study, emotional demands positively predicted depersonalisation, while team work was related to decreased depersonalization in both Croatian and Macedonian nurses. The more that nurses reported emotional work demands, the more they experienced depersonalisation. On the other hand, the more that nurses felt team work in their unit, the less they experienced cynical attitude towards work. Similarly, Demir et al. reported that problematic relationships among team members were shown to increase burnout (Demir, Ulusoy, & Ulusoy, 2003). A study has also demonstrated that physicians who perceive that their work demands are reasonable, and who have more support from colleagues have higher levels of psychological well-being (Freeborn, 2001). Again, in Macedonian nurses, age positively predicted depersonalisation.

Finally, we have found that in Croatian nurses team work showed a buffering effect (i.e., increasing the team work would decrease the effect of the

emotional demands on depersonalization). The more that nurses felt team work in their unit, the less that emotional demands had an increasing effect on depersonalization. Team work also showed a buffering effect in Macedonian nurses (i.e., increasing the team work would decrease the effect of age on the depersonalization). The more that nurses felt team work in their unit, the less that age had an increasing effect on depersonalization. On the other hand, in Macedonian nurses we have found that emotional demands showed an enhancing effect (i.e., increasing the emotional demands would increase the effect of the age on the depersonalization). The more that nurses experienced emotional demands, the more age had an increasing effect on depersonalization. The aforementioned effects were particularly evident under conditions of high emotional demands as well as in older nurses.

Similar to our findings, Bakker et al. (Bakker & Demerouti, 2007; Bakker, Van Veldhoven, & Xanthopoulou, 2010) found that job resources (e.g., autonomy, colleague support, leader support, performance feedback) were most effective in maintaining work engagement and low depersonalisation under conditions of high job demands (excessive workload and emotional demands). This indicates that job resources express their motivational potential particularly when employees are confronted with high job demands.

The findings from this study should be interpreted with caution as cross-sectional research is limited with regard to causality. Also, a “healthy worker effect” may mean that we have under-estimated the levels of burnout, especially in Macedonian nurses. Additionally, as it concerns the majority of papers within this field, answering bias could rise because it is possible that more affected nurses tended to answer. Further limitations also include the fact that the analyses are based on self reporting from questionnaires.

We can conclude that this study shows differences in burnout, work demands, and team work between hospital nurses working in different settings from two countries in the region of SEE. It has also shown that emotional work demands were related to increased emotional exhaustion and increased depersonalisation, while team work predicted lower emotional exhaustion and lower depersonalisation in both groups. Age was found to be positive predictor of emotional exhaustion and depersonalisation only among Macedonian nurses. Team work showed a buffering effect on the development of depersonalisation via emotional demands (in Croatian nurses) or through aging (in Macedonian nurses). Finally, in Macedonian nurses emotional demands showed an enhancing effect on the development of depersonalization via aging.

In contrast with the burnout literature, we found lower average emotional exhaustion and depersonalisation scores, mainly because of the presence of increased compensatory efforts due to increased work demands in order to maintain performance level and, particularly in Macedonian group, because of the existence of hospital “protective factors” (e.g., support from superiors and co-workers, team

work, independence in decision-making). In the actual study only team work as an important workplace protective factor was investigated. Future research should be focused on other job resources (such as salary, job security, participation in decision making, autonomy, performance feedback, etc.) that could reduce job demands and protect HPs from disengagement. Further studies should also include the concept of job satisfaction and its' factors and their relationships with burnout in different countries. Special attention should be paid on the associations between different job and psychological characteristics of HPs and quality of patient care.

The data obtained can be used in the creation and implementation of specific organizational interventions in the hospital settings analysed in the study, guided by the differences found in work demands as well as by the demonstrated moderating effects of team work and emotional demands on the development of depersonalisation. As emotional work demands were found to be significant predictors of burnout and team work was identified as a workplace factor that lowers this syndrome, specific strategies should be implemented in both hospitals towards improvement of cooperation between staff members as well as minimizing competitiveness between colleagues. Further building of the team work within the hospital setting can be used as a mean with regard to improving well being in health professionals since team work was found to have buffering effect on the development of burnout. Forming teams to solve workplace problems, holding regular meetings to review progress, celebrating team successes publicly as well as building fun and shared occasions into the hospital's agenda can be used to strengthen these buffering effects. In the Macedonian hospital the attention should be also focused on physical work demands. Reducing workload and time pressure through new employments as well as by purchasing new medical equipment and other supplies should be taken into account. These issues should be presented to the policy makers especially in the context of health care reforms. Finally, it is important to notice that providing adequate job demands-resources interaction can lead to the prevention of work-related burnout in nurses, and contribute positively to higher quality of patient care. These considerations are particularly meaningful since scientific evidence clearly demonstrates that burnout in health professionals leads to reduced quality of care.

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