

Burnout and Its Association with Working Conditions among Greek Hospital Nurses in a Time of Financial Crisis

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Abstract

The recent global economic recession has affected nursing working conditions in terms of salary reductions, increased workload and staff shortages. Poor nursing working conditions are associated with higher levels of burnout. However in Greece this association has not yet been studied. The aim of this study was to explore financial crisis related changes in nurses' working conditions and their associations with burnout. A cross-sectional quantitative survey was conducted and data were collected through self-reported questionnaires from 299 Greek nurses from two Public Hospitals in 2012. Multiple linear regression analyses were used in order to find independent factors associated with burnout. The results showed that Greek nurses had high levels of burnout. Satisfaction from the job, quality of care and feeling equivalent with other professionals were independent predictors of lower emotional exhaustion. Workload increase and willingness to change career and work department were independent predictors of higher emotional exhaustion. Job satisfaction and satisfaction from care quality were independent predictors of lower depersonalization. Changes in working relationships and willingness to change career were independent predictors of higher depersonalization. Higher personal accomplishments were independently associated with more years in nursing, satisfaction from the salary prior to reductions, better quality of care, feeling suitable for the job and being anxious about future career. Influence on nurse efficiency by income reduction was an independent predictor of lower personal accomplishments. In conclusion, Greek nurses were suffering from high levels of burnout which was independently associated with crisis related working conditions. Interventions are needed in order to reduce the

burden of burnout among Greek nurses.

Keywords

Burnout, Austerity, Nurse Practice Environment, Maslach Burnout Inventory

1. Introduction

The recent global economic recession has raised major concerns for the nursing workforce worldwide, concerning job losses and salary reductions that can lead to an unavoidable shortage of staff and increase in workload [1] [2], thus affecting nurse's working conditions. Research evidence suggests that poor nursing working environments are associated with burnout [3] and especially work-life areas such as workload, control, reward, community, fairness and values [4].

Greece in particular, since 2010, has imposed strict fiscal austerity measures in the public sector, part of the requirements of a bailout programme under the supervision of the so called "troika" (European Commission, the European Central Bank and the International Monetary Fund) due to large public deficit and debts that threatened the country with bankruptcy [5]. Health care systems in Greece have been largely affected as for 2011 the health budget was €1.4 billion decreased mainly through salary cuts and reductions in operating costs [5] [6], while the plan is for a further reduction of €2.1 billion from health care budget until 2015 [7].

Admissions in private hospitals have been reduced by 40% [7]. On the other hand there is higher demand for public hospital services. Admissions in public hospitals increased by 24% in 2010 compared to 2009 and by a further 8% in the first half of 2011 compared to the first half in 2010 [5]. Besides, 26,000 health professionals have been redundant including 9100 doctors [7], while there is a plan for a further reduction of 150,000 jobs in the wider public sector between 2011 and 2015 [6]. Nonetheless, a 40% reduction in hospital budgets has caused shortage of pharmaceutical and medical supplies [8].

As far as the nursing personnel are concerned, Greece had always a shortage of nurses. In 2009, before the onset of this crisis, there were only 3.3 nurses per 1000 population with the average in OECD countries at 8.4 [9]. During the crisis, new hiring in the public sector has frozen, while many nurses have chosen early retirement due to gross salary reductions and changes in the pensions scheme [10]. Unemployment rates tripled during the crisis from 8.6% in 2009 [11], to 27.8% in 2013 [12].

Salary reductions and increased taxation have severely diminished the income of public servants, including nurses. According to an OECD report, the gross salary earnings of the Greek population fell by 25.3% in 2011 [13].

Other measures to reduce health budgets include elimination or merging of 370 specialist units and a reduction in public hospital beds from 35,000 to 33,000 [6].

Under these circumstances the Greek public health care system is experiencing tremendous challenges to find a balance between diminished resources and increased demands for services. Greek nurses are at the core of the public health care system and are exposed to heavy workload and a number of other changes in their working conditions which remain unexplored and may increase their levels of burnout.

Burnout is a psychological syndrome entailing a long term reaction to job related stressors; it is quite common among nurses and nursing is one of the most extensively studied professions in this field [4]. The three dimensions of this syndrome, are emotional exhaustion, depersonalization and lack of personal accomplishments [4]. Emotional exhaustion refers to the state where the professionals are emotionally empty to care for other people, depersonalization means nurses treat patients as objects rather than human beings and is also called cynicism and lack of personal accomplishments means a feeling of inadequacy, accompanied by negative self perceptions [4] [14]-[17].

Among the causes of burnout are: the long term stress at job, staff shortage, low rewards, high workload, and injustice [18] [19]. Morgan and Lynn [20] have pointed out that when the workload is high, nurses have fewer opportunities to receive intrinsic rewards from their work through the quality of nursing care they would be willing to provide to their patients.

According to an organizational model, 6 areas of the nurse worklife have been associated with burnout [4]. Among them work-load and control are key issues in the stress caused by the job demands. The other areas are

the rewards that reflect both material rewards and rewards related to job satisfaction, social support and quality of interpersonal relationships, fairness and justice in relation to the other health care professionals and an ability to fulfill personal expectations and job targets [4].

Burnout has been associated with depressive symptoms, chronic fatigue, psychosomatic symptoms and low satisfaction from personal and family life [21]. Furthermore burnout is a factor associated with reduced nurse productivity, diminished patient quality of care, job dissatisfaction and willingness to leave the job [4] [22] [23].

However, other research evidence suggests that nursing working conditions can determine job satisfaction and intentions to leave the profession [24]-[27] and are related to poor quality of nursing care, and diminished patient safety [14] [28]-[31]. Jourdain and Chevevert [28] have indeed argued that professional commitment is a stronger predictor of nurse turnover than emotional exhaustion. Similarly Bartram *et al.* [32] found that perceived high performance work systems, which is a job resource for nurses, was the strongest predictor of intentions to leave the profession. Recent research by Kutney-Lee *et al.* [31] suggests that improvements in the working environments of nurses decreases not only burnout, but also their intentions to leave and their job dissatisfaction, while Van den Heede *et al.* [33] have found significant associations between staffing and work environment with intentions to leave the profession.

A recent survey in Greece to investigate the impact of job stress on satisfaction among nurses has reported that heavy workload and conflicts were related to work stress which in turn affected negatively all job satisfaction dimensions [34].

In this study we aimed to investigate the associations between burnout and the new work related experiences of the Greek nurses during the crisis. In accordance to the research evidence mentioned above and bearing in mind the specific Greek context characterized by high unemployment rates and severe lack of new working opportunities, we considered intentions to leave the profession or change work department and job dissatisfaction to be work environment related experiences of the nurses rather than nurse outcomes and we wanted to explore their associations with burnout.

2. Methods

2.1. Study Population

A cross sectional questionnaire survey was conducted with a convenient sample of 299 registered and associate nurses from 2 acute care District General Public Hospitals in Athens, Greece. All nurses with any educational background providing direct patient care in every ward of the hospitals were eligible to participate. The two hospitals have similar work environments and both have more than 400 beds.

2.2. Data Collection

Self reported questionnaires were distributed to the nurses by the principal investigator during repeated visits on the wards of the 2 hospitals on an early, late and night shift. Participants who agreed to participate completed the questionnaires when it was convenient for them and the researcher collected the completed questionnaires from the wards through repeated follow up visits. This strategy of repeated visits was deemed necessary in order to increase the response rate considering the high levels of workload for nurses and a lack of research culture in the public hospitals in Greece, *i.e.* lack of research officers, or research liaison nurses. Only a couple of nurses were very negative and refused to deliver the questionnaire at all. Approximately 10 - 15 nurses failed to complete or return the questionnaire they had received. Data collection took place between July-November 2012.

The questionnaire had two parts. The first part was about demographics, financial conditions and working related conditions. It had 27 single items with Likert type scales and yes/no questions and was developed by the authors based on the international literature.

The second part of the questionnaire was the Maslach Burnout Inventory for Human Services Survey (MBI-HSS), by Maslach and Jackson [35]. This is one of the most widely used inventories of measuring burnout [19]. This is a self reported instrument consisting of 22 items on a seven point likert scale. There are 9 items for emotional exhaustion, 5 items for depersonalization and 8 items for personal accomplishments.

2.3. Ethical Considerations

Ethics approval was obtained from the research committees of the two hospitals and a Greek University. Ques-

tionnaires were accompanied by an information sheet explaining the purposes of the study and ensuring voluntarily participation, anonymity and confidentiality.

2.4. Data Analysis

Continuous variables are presented with mean and standard deviation (SD). Quantitative variables are presented with absolute and relative frequencies. Univariate linear regression analyses were performed in order to estimate association of burnout scales with demographics and work related characteristics. Multiple linear regression analyses were used in order to find independent factors associated with burnout scales using a stepwise method (p for removal was set at 0.1 and p for entry was set at 0.05). Regression coefficients and standard errors were computed from the results of the linear regression analyses. Variables that their responses were at a Likert scale were treated as ordinals in the regression models. All p values reported are two-tailed. Statistical significance was set at 0.05 and analyses were conducted using SPSS statistical software (Version 19.0).

2.5. Validity and Reliability

Reliability and validity for the Greek version of the Maslach Burnout Inventory have been established. In a randomly selected sample of 152 nurses content validity was confirmed and Cronbach's alpha was 0.83 for the emotional exhaustion subscale, 0.799 for the personal accomplishments subscale and 0.603 for the depersonalization subscale [36]. In this study overall Cronbach's alpha was 0.73 and for the subscales, Cronbach's alpha was 0.75 for emotional exhaustion, 0.75 for personal accomplishments and 0.72 for depersonalisation, indicating good internal consistency reliability.

3. Results

Data from 299 participants were analyzed. Sample characteristics are presented in **Table 1**.

Most of the participants (80.9%) were women and the mean age of the sample was 37.8 years (SD = 7.3 years). Most of the nurses were on rotated shifts (81.8%) and 36.8% had a nursing specialty certificate. Almost one third (27.0%) were dissatisfied or very dissatisfied with their current job, 29.3% would like to change working department and 24.8% would like to change career. The work characteristics associated with crisis conditions are shown in **Table 2**.

Only 15.8% declared to have sufficient income, while most of the nurses (96.6%) were moderate to very much dissatisfied due to their income reduction. Almost half of the nurses (51.1%) stated that their efficiency has been influenced due to income reduction, 87.0% stated that their work load increased due to the current economical situation and 87.9% stated that the economical crisis affected their personal life. The majority of the nurses were moderate to very much satisfied from the care quality they provided in their last shift, while 58.2% believed that the care quality in their departments was reduced during the last year and 70.1% were moderate to very much anxious about their career in future. Also, 30.4% of the nurses stated that the working relationships with their seniors and their colleagues changed due to the economical crisis. The mean values for Emotional exhaustion scale was 27.5 (SD = 11.3) for Personal accomplishments scale was 32.6 (SD = 9.3) and for Depersonalization scale was 8.0 (SD = 6.1).

Univariate analysis for Emotional exhaustion (**Table 3**) showed that nurses from psychiatric departments had lower scores compared to all other departments.

Also, it was found that as "dissatisfaction due to income reduction", "influence on their efficiency by income reduction", the degree that the "work load increases due to the current economical situation" and "stress for their future career" become greater, the Emotional exhaustion increases. Additionally, the Emotional exhaustion decreases as the "satisfaction from your wage prior to the reduction" or from the "care quality they provided at last shift" increases. A similar pattern was found between Emotional exhaustion and the degree they feel "equivalent to the other health care professionals". Additionally, univariate analysis showed that subjects with better health, those that were satisfied from their current job, those declared that the care quality in their department during the last year improved and those with nurse specialty had lower levels of Emotional exhaustion. Greater scores on Emotional exhaustion were found in nurses that wanted to change career or their work department and in those that the economical crisis affected their personal life. When multiple analysis in a stepwise method was conducted (**Table 3**) it was found that satisfaction from the current job, the willingness to change work department and career, the work load increase due to the current economical situation, satisfaction from the care quality they

Table 1. Demographic and work related characteristics.

	N (%)
Age, mean (SD)	37.8 (7.3)
Gender	
Male	57 (19.1)
Female	242 (80.9)
Married	
No	125 (41.8)
Yes	174 (58.2)
Work department	
Medical	58 (19.7)
Surgical	76 (25.8)
Urology	30 (10.2)
Psychiatric	36 (12.2)
Other	95 (32.2)
Do you work in rotated shifts	
No	54 (18.2)
Yes	242 (81.8)
Years in nursing, mean (SD)	13.3 (7.7)
Years in current department, mean (SD)	7.5 (6.2)
Work title	
Head nurse	22 (7.5)
Charge Nurse	64 (21.8)
Staff Nurse	207 (70.6)
Education	
Associate Nurses (Primary/secondary education)	80 (27)
Registered Nurses (Tertiary level)	216 (73)
Nurse specialty certificate	
No	165 (63.2)
Yes	96 (36.8)
Satisfied from your current job	
Very dissatisfied	10 (3.4)
Dissatisfied	70 (23.6)
Satisfied	178 (59.9)
Very satisfied	39 (13.1)
Do you want to change career	
No	221 (75.2)
Yes	73 (24.8)
Do you want to change your work department	
No	203 (70.7)
Yes	84 (29.3)
Annual family income (Euros)	
Lower than 10,000	18 (6.3)
10 - 15,000	78 (27.2)
15 - 20,000	70 (24.4)
20 - 25,000	44 (15.3)
25 - 30,000	38 (13.2)
More than 30,000	39 (13.6)

Table 2. Work characteristics associated with crisis conditions.

	N (%)
Sufficient family income	
No	250 (84.2)
Yes	47 (15.8)
How dissatisfied are you due to your income reduction?	
Not at all	0 (0)
A bit	10 (3.4)
Moderate	29 (9.7)
Very	80 (26.8)
Very much	179 (60.1)
Were you satisfied with your wage prior to the reduction?	
Not at all	30 (10)
A bit	55 (18.4)
Moderate	157 (52.5)
Very	48 (16.1)
Very much	9 (3)
How much influenced is your efficiency by your income reduction?	
Not at all	75 (25.1)
A bit	71 (23.7)
Moderate	68 (22.7)
Very	68 (22.7)
Very much	17 (5.7)
How much has your work load increased due to the current economical situation?	
Not at all	14 (4.7)
A bit	25 (8.3)
Moderate	53 (17.7)
Very	117 (39)
Very much	91 (30.3)
Has the economical situation affected your personal life?	
No	35 (12.1)
Yes	255 (87.9)
Are you satisfied from the care quality you provided in your last shift?	
Not at all	7 (2.4)
A bit	18 (6.1)
Moderate	82 (27.8)
Very	157 (53.2)
Very much	31 (10.5)
How would you describe the care quality in your department during the last year?	
Reduced	170 (58.2)
Improved	122 (41.8)
Do you feel equivalent to the other health professionals?	
Not at all	62 (20.9)
A bit	38 (12.8)
Moderate	86 (29)

Continued

Very	78 (26.3)
Very much	33 (11.1)
Do you stress for your future career?	
Not at all	26 (8.6)
A bit	64 (21.3)
Moderate	67 (22.3)
Very	103 (34.2)
Very much	41 (13.6)
Do you feel suitable for this job?	
Not at all	3 (1)
A bit	7 (2.3)
Moderate	41 (13.7)
Very	153 (51.2)
Very much	95 (31.8)
Have the working relationships with your colleagues and seniors changed due to the economical crisis?	
Not at all	142 (47.5)
A bit	66 (22.1)
Moderate	58 (19.4)
Very	26 (8.7)
Very much	7 (2.3)
How would you describe your general health?	
Very bad	3 (1)
Bad	16 (5.4)
Moderate	66 (22.1)
Good	161 (53.8)
Very good	53 (17.7)

Table 3. Results from univariate and multiple linear regression analyses with dependent variable the Emotional exhaustion.

	$\beta^* \pm SE$	P	$\beta^{**} \pm SE$	P
Age	0.18 ± 0.1	0.079		
Gender, male (ref)				
Female	1.43 ± 1.79	0.426		
Married, no (ref)				
Yes	2.13 ± 1.45	0.144		
Work department, psychiatric (ref)				
Medical	5.94 ± 2.45	0.016		
Surgery	10.63 ± 2.37	<0.001		
Urology	10 ± 3.07	0.001		
Other	7.1 ± 2.28	0.002		
Do you work in shifts, no (ref)				
Yes	2.01 ± 1.91	0.294		
Years in nursing	0.16 ± 0.1	0.100		
Years in current department	0.11 ± 0.12	0.367		

Continued

Work title, staff nurse (ref)				
Head nurse	-4.39 ± 2.79	0.117		
Charge nurse	-2.61 ± 1.8	0.148		
Education, Associate nurse(ref)				
Registered nurse	-2.58 ± 1.69	0.128		
Nurse specialty, no (ref)				
Yes	-4.46 ± 1.58	0.005		
Satisfied from your current job	-7.27 ± 0.98	<0.001	-3.00 ± 1.20	0.013
Do you want to change career, no (ref)				
Yes	7.79 ± 1.57	<0.001	4.51 ± 1.59	0.005
Do you want to change your work department, no (ref)				
Yes	7.58 ± 1.53	<0.001	2.61 ± 0.81	0.001
How dissatisfied are you due to your income reduction?	4.18 ± 0.85	<0.001		
Were you satisfied with your wage prior to the reduction?	-1.85 ± 0.76	0.015		
How much influenced is your efficiency by your income reduction?	1.9 ± 0.58	0.001		
How much has your work load increased due to the current economical situation?	3.31 ± 0.64	<0.001	1.68 ± 0.64	0.009
Has the economical situation affected your personal life?, no (ref)				
Yes	6.09 ± 2.11	0.004		
Are you satisfied from the care quality you provided in your last shift?	-3.85 ± 0.86	<0.001	-2.19 ± 0.85	0.011
How would you describe the care quality in your department during the last year?, reduced (ref)				
Improved	-5.35 ± 1.46	<0.001		
Do you feel equivalent to the other health professionals?	-2.08 ± 0.55	<0.001	-1.1 ± 0.52	0.037
Do you stress for your future career?	1.37 ± 0.6	0.024		
Do you feel suitable for this job?	-1 ± 0.89	0.262		
Have the working relationships with your colleagues and seniors changed due to the economical crisis?	0.31 ± 0.69	0.656		
How would you describe your general health?	-4.17 ± 0.84	<0.001		

Ref = reference category; β = regression coefficient; SE = standard error. *unadjusted coefficients; **adjusted coefficients as derived from stepwise method.

provided at last shift and the degree they feel equivalent to the other health care professionals were independent predictors of Emotional exhaustion.

Univariate analysis for Personal accomplishments (**Table 4**) indicated a significantly greater score for Psychiatric and Surgical departments compared to Medical ones.

Also, Personal accomplishments were greater for those being satisfied from their current job or those declared that the care quality in their department during the last year improved. Personal accomplishments were lower for nurses working rotated shifts, for those that wanted to change career or their work department. Additionally, Personal accomplishments increases as the satisfaction from the wage prior to the reduction due to economical crisis or from the care quality they provided at last shift increases. The influence on their efficiency by income reduction and the degree that the working relationships with their seniors and their colleagues changed due to the economical crisis had a negative effect on Personal accomplishments. Years in nursing, the degree they feel suitable for their job or having stress for their future career were positively correlated with Personal accomplishments. Multiple analysis (**Table 4**) indicated that years in nursing, satisfaction from the wage prior to the reduction, the influence on their efficiency by income reduction, improvement of the care quality in their department during the last year, the degree they feel suitable for their job and being anxious for their future career were independently associated with Personal accomplishments.

Table 4. Results from univariate and multiple linear regression analyses with dependent variable the Personal accomplishments.

	$\beta^* \pm SE$	P	$\beta^{**} \pm SE$	P
Age	0.2 ± 0.08	0.016		
Gender, male (ref)				
Female	1.62 ± 1.46	0.268		
Married, no (ref)				
Yes	-1.06 ± 1.21	0.383		
Work department, Medical (ref)				
Surgery	7.07 ± 1.72	<0.001		
Urology	2.31 ± 2.23	0.301		
Psychiatric	6.61 ± 2.07	0.002		
Other	5.84 ± 1.63	<0.001		
Do you work in shifts, no (ref)				
Yes	-3.33 ± 1.54	0.032		
Years in nursing	0.2 ± 0.08	0.013	0.19 ± 0.08	0.014
Years in current department	0.12 ± 0.1	0.208		
Work title, Staff nurse (ref)				
Head nurse	3.12 ± 2.24	0.165		
Charge nurse	-0.14 ± 1.53	0.927		
Education, Associate nurse (ref)				
Registered nurse	-0.95 ± 1.37	0.489		
Nurse specialty, no (ref)				
Yes	1.71 ± 1.34	0.204		
Satisfied from your current job	2.32 ± 0.87	0.008		
Do you want to change career, no (ref)				
Yes	-5.08 ± 1.36	<0.001		
Do you want to change your work department, no (ref)				
Yes	-4.32 ± 1.29	0.001		
How dissatisfied are you due to your income reduction?	0.7 ± 0.72	0.333		
Were you satisfied with your wage prior to the reduction?	1.31 ± 0.64	0.042	1.32 ± 0.58	0.024
How much influenced is your efficiency by your income reduction?	-1.27 ± 0.48	0.009	-1.01 ± 0.47	0.033
How much has your work load increased due to the current economical situation?	-0.44 ± 0.55	0.422		
Has the economical situation affected your personal life?, no (ref)				
Yes	-2.82 ± 1.77	0.114		
Are you satisfied from the care quality you provided in your last shift?	2.8 ± 0.71	<0.001		
How would you describe the care quality in your department during the last year?, reduced (ref)				
Improved	3.95 ± 1.2	0.001	1.76 ± 0.74	0.018
Do you feel equivalent to the other health professionals?	-0.27 ± 0.46	0.558		
Do you stress for your future career?	1.15 ± 0.5	0.023	1.19 ± 0.5	0.018
Do you feel suitable for this job?	4.76 ± 0.66	<0.001	4.04 ± 0.67	<0.001
Have the working relationships with your colleagues and seniors changed due to the economical crisis?	-1.15 ± 0.57	0.043		
How would you describe your health?	0.78 ± 0.72	0.281		

Ref = reference category; β = regression coefficient; SE = standard error. * unadjusted coefficients; ** adjusted coefficients as derived from stepwise method.

As far as it concerns Depersonalization, univariate analysis (**Table 5**) showed lower levels for those that had Nurse Specialty, for those being satisfied from their current job or being more satisfied from the care quality they provided during their last shift, in those declared that the care quality in their department during the last year improved, in nurses feeling more equivalent to the other health care professionals or more suitable for their job and in those with better health.

In contrast, Depersonalization had greater scores in nurses working rotated shifts, in those that wanted to change career or their work department, in those that their efficiency was more influenced by income reduction and in those that the working relationships with their seniors and their colleagues had changed due to the economical crisis. Multiple analysis for Depersonalization (**Table 5**) indicated that satisfaction from their current job, satisfaction from the care quality they provided during their last shift were independently associated with less Depersonalization, while the degree that the working relationships with their seniors and their colleagues had changed due to the economical crisis and the willingness to change career were independently associated with greater Depersonalization.

4. Discussion

This study investigated work environment related experiences in association with burnout during the economic crisis in Greece. Greek nurses suffered high emotional exhaustion, moderate levels of depersonalization and had moderate, but near low, personal accomplishments. As expected, in our study emotional exhaustion was higher in comparison to other studies in Greece before the crisis [36]-[39]. An unexpected finding was that depersonalization was lower in our study compared to other studies in Greece before the crisis [36]-[38] and similar with the findings of Kiekkas *et al.* [39]. This is probably a result of the particular situation in the country. During this crisis, the whole Greek society has experienced a lot of suffering and there is an increased solidarity among people during these difficult times. In addition research on nurse resilience suggests that the very demanding circumstances and psychological emptiness are contributing factors for nurse resilience [40].

Personal accomplishments were also reduced in this study during the crisis in comparison with results from other Greek studies before the crisis [36]-[38].

The findings of our study are congruent with the findings of a large European project (RN4CAST) where the Greek nurses had the higher levels of burnout among all 12 participating European countries [23] [41], while at international level only in Japanese [22], and Chinese nurses [42] have been reported higher levels of burnout.

Increased workload, self-reported quality of care, relationships with seniors and colleagues, job dissatisfaction and willingness to leave nursing or change work department, influence on efficiency by income reduction, feeling equivalent to other health professionals, were the main effects of the crisis on the working environment related experiences of the nurses that were also independent predictors of burnout.

Interestingly, we found that although for nearly 6 out of 10 nurses quality of care at their department had fallen during the last year, most of the nurses were satisfied with the quality of their care during their last shift. This can possibly be explained as a number of other factors may be considered responsible for a decline in quality of care on the wards, such as lack of resources, lack of medicines, lack of equipments, difficulties in performing laboratory tests, that have undermined quality of care in their departments and for which nurses cannot blame themselves. Before the crisis, only 27% of the Greek nurses had reported deterioration in quality of patient care during last year [29]. Considering that care quality in Greek hospitals was generally poor even before the crisis [29] it is alarming that quality of care during this crisis has been further deteriorated. Evidence shows that reduction of care quality is a consequence of the financial crisis as in the large European study in 2009-2010, 20% - 40% among the nurses of all countries reported a deterioration in quality of care during the preceding year [29]. Research confirms that quality of care rated by nurses themselves is a valid and reliable indicator of quality and is associated with mortality rates, failure to rescue rates and patient reported quality of care [43].

In our study, satisfaction of the nurses from the care quality they provided in their last shift was an independent predictor of reduced emotional exhaustion and depersonalization, a finding that resembles the findings of other researchers [22] [30] [44]. In addition our study has shown that the better the quality of care in work department the higher the personal accomplishments for the Greek nurses, which also echoes the findings of Li *et al.* [23] and Poghosyan *et al.* [22]. In contrast, the reported reduced efficiency due to income reduction was an independent predictor of lower personal accomplishments. Maslach and Goldberg [45] have argued that low rewards diminish the value of the work and the value of the worker and a feeling of injustice is developed when other professions with less workload have better financial rewards. This finding is congruent with the findings of

Table 5. Results from univariate and multiple linear regression analyses with dependent variable the Depersonalization.

	$\beta^* \pm SE$	P	$\beta^{**} \pm SE$	P
Age	-0.01 ± 0.05	0.816		
Gender, male (ref)				
Female	-1.07 ± 0.94	0.255		
Married, no (ref)				
Yes	0.15 ± 0.76	0.843		
Work department, Medical (ref)				
Surgery	0.52 ± 1.12	0.643		
Urology	0.67 ± 1.47	0.648		
Psychiatric	-0.97 ± 1.35	0.472		
Other	-0.3 ± 1.08	0.781		
Do you work in shifts, no (ref)				
Yes	1.93 ± 0.97	0.048		
Years in nursing	-0.06 ± 0.05	0.190		
Years in current department	0.02 ± 0.06	0.722		
Work title, Staff nurse (ref)				
Head nurse	-2.68 ± 1.41	0.058		
Charge nurse	-0.65 ± 0.93	0.484		
Education, Associate nurse (ref)				
Registered nurse	0.42 ± 0.86	0.625		
Nurse specialty, no (ref)				
Yes	-2.23 ± 0.83	0.007		
Satisfied from your current job	-2.8 ± 0.53	<0.001	-1.77 ± 0.57	0.002
Do you want to change career, no (ref)				
Yes	3.04 ± 0.85	<0.001	1.83 ± 0.86	0.046
Do you want to change your work department, no (ref)				
Yes	3.02 ± 0.81	<0.001		
How dissatisfied are you due to your income reduction?	0.31 ± 0.46	0.504		
Were you satisfied by your wage prior to the reduction?	-0.42 ± 0.4	0.295		
How much influenced is your efficiency by your income reduction?	1.11 ± 0.29	<0.001		
How much has your work load increased due to the current economical situation?	0.31 ± 0.34	0.369		
Has the economical situation affected your personal life?, no (ref)				
Yes	1.27 ± 1.14	0.264		
Are you satisfied from the care quality you provided in your last shift?	-2.46 ± 0.42	<0.001	-1.80 ± 0.44	<0.001
How would you describe the care quality in your department during the last year?, reduced (ref)				
Improved	-3.34 ± 0.74	<0.001		
Do you feel equivalent to the other health professionals?	-0.73 ± 0.29	0.013		
Do you stress for your future career?	0.02 ± 0.31	0.945		
Do you feel suitable for this job?	-1.89 ± 0.46	<0.001		
Have the working relationships with your colleagues and seniors changed due to the economical crisis?	0.99 ± 0.34	0.004	0.86 ± 0.33	0.010
How would you describe your health?	-1.19 ± 0.44	0.008		

Ref = reference category; β = regression coefficient; SE = standard error. * unadjusted coefficients; ** adjusted coefficients as derived from stepwise method.

Karaniadou *et al.* [46] in Greece who also found an association between low income and low personal accomplishments.

That was the only observed effect of salary reductions on nurses' burnout. It was expected that the gross salary reductions in Greece over the last years could be a predictor of burnout for nurses. In our study almost all nurses were dissatisfied by their income reduction, however salary reduction per se was not found to be independently related with burnout. The intrinsic rewards such as the quality of care they provided during their last shift and the general quality of care on their wards and not monetary rewards were more important to Greek nurses during the crisis, a finding which is congruent with the findings of Morgan and Lynn [20] with British nurses.

The finding that job dissatisfaction and intentions to leave nursing or change work department were independent predictors of emotional exhaustion and depersonalization, resembles other reports showing similar relationships [16] [28] [47].

Although some studies have shown relationships between job satisfaction and intentions to leave with emotional exhaustion only [3] [48], other research [39] [49] has correlated job dissatisfaction with all 3 dimensions of burnout.

Another well established relationship in burnout research was verified in this study. The increased workload for the public hospital nurses during the crisis was an independent predictor of emotional exhaustion. Workload is a source of stress for nurses [50] and many other studies have identified workload as the main cause of emotional exhaustion [3] [4] [18] [28] [39] [51]-[53].

In addition, feeling equivalent to the other health care professionals was also found to be an independent predictor of emotional exhaustion. This may mean equity in both terms of recognition, autonomy and rewards. Leiter and Maslach [4] have pointed out that organizational justice and respect and fair distribution of rewards, are related with burnout. Similarly Cho *et al.* [52] have found that lack of fairness was related to emotional exhaustion.

One more area in burnout research which are the relationships with seniors and colleagues and its relationship to burnout was also observed in our study. For those nurses who considered their working relationships with seniors and colleagues had changed, depersonalization was higher. As workload increases resulting in emotional stress, conflicts may arise between all health professionals and their superiors. Earlier research in Greece has shown that conflicts with doctors caused higher level of depersonalization between nurses [39]. Likewise, conflicts between nurses also caused depersonalization [49]. In other countries professional relationships have also been correlated with burnout [23]. In addition, it has been found that support among nurses and support from managers helps nurses be resilient and adapt to their work related stressors [40].

Finally, the factors that were independently related with higher personal accomplishments such as years in nursing, suitability for the job, satisfaction with salary prior to reductions and being anxious about future career, seem to be interrelated. In the Greek context nurses with more experience and better salaries prior to reductions were the nurses in higher grades, performing roles such as charge nurses, sister assistants, clinical educators, or being placed in specialized units. Those nurses may also feel more suitable for this job. Although no other report was found in the literature to correlate nurses' anxiety for future career with personal accomplishments, anxiety for future career is probably a context specific finding in Greece where a lot of changes are happening in the health care sector with closures and merging of hospitals, hospital departments and special units, nurses mobility, reallocations of staff, privatizations and so on. This may have caused anxiety in those nurses who may think that their accomplishments through the years may be in jeopardy during the time of restructuring of the health care services.

In relation to age and personal accomplishments research evidence is conflicting with some studies showing that older age is related to lower personal accomplishments [54] and other studies finding that younger nurses had lower levels of personal accomplishments [16] [55]. This probably reflects cultural and context related influences. Research on personal accomplishment outcomes, agrees that those who were satisfied with their job had higher scores on personal accomplishments [16]. Nurses who feel they are suitable for nursing are obviously those nurses who are satisfied with their job. Other research in Greece [38] [39] has confirmed that the more suitable one feels for nursing, the higher the personal accomplishments.

5. Limitations

There are some limitations in this study. One limitation is the convenience sampling procedure for both hospitals

and nurses which limits the generalization of the results. Although the questionnaire was distributed at various times during all three nursing shifts, nurses who participated in this study may have different characteristics from those not participating.

Another limitation lies in the validity of self-reported data. Perhaps many participants would like to express their unhappiness with the austerity measures and massive reductions on their salaries by the government during the crisis. However many months had elapsed since their income reductions thus this may have diminished the possibilities for biased results.

The study was conducted in only 2 hospitals in the capital city of Athens. Future research should include more hospitals from more geographical areas of Greece.

The cross-sectional design of this study does not allow to study associations between work environment related changes and burnout over time.

6. Conclusions

The new working conditions that have been created for the public hospital nurses in Greece during the years of strict austerity measures have raised their levels of burnout. In this first exploration of the associations between austerity related changes in nursing working environments and burnout we conclude that the factors found to be independently related with burnout belong to the six areas of nurse work life verifying this organizational model of burnout. Quality of care has been reduced during the crisis despite nurses' efforts who in vast majority were satisfied by their own quality of care offered. Quality of care was the only factor that was independently associated with all 3 dimensions of burnout. Income reduction per se was not an independent predictor of burnout. This finding is supportive of the notion that inner rewards rather than monetary rewards matter more for nurses. In this study the only financial related effect on burnout was a reduction in personal accomplishments for the nurses who reported diminished efficiency due to income reduction.

As the omens for the Greek economy are not optimistic for recovery and working conditions will continue to get worse as the austerity measures have not yet finalized and further structural reforms are underway, it is important to periodically evaluate nurses for burnout levels.

Deterioration of the quality of care is a negative consequence of the austerity measures and affects not only the patients but nurses' burnout levels. Those side effects of fiscal austerity measures could cause indirect health care costs that may exceed the amount of money saved now. Governmental officials ought to know that and take immediate interventions to improve the quality of care in the public Greek hospitals to protect the safety of the patients and preserve the wellbeing of the nurses.

There are some other low cost interventions to improve the working environment of Greek nurses during the crisis such as empowering professional relationships and adapting strategies to promote equity among health professionals.

Further studies on the effects of the financial crisis on the working conditions of the Greek nurses and their associations with burnout throughout the country to verify the findings of this study are needed.

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Conflict of Interest

No conflict of interest has been declared by the authors.

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