

# BURNOUT AMONG INTENSIVE CARE WORKERS IN A TERTIARY CARE HOSPITAL IN SAUDI ARABIA

By

El -Sherbiny E<sup>1</sup>, Khashaba E<sup>1</sup> and Abdel-Hady A<sup>2</sup>

<sup>1</sup>Department of Public Health and Community Medicine, Faculty of Medicine, Mansoura University, Mansoura, <sup>2</sup>Department of Critical Care, Faculty of Medicine, Alexandria University, Alexandria, Egypt.

## Abstract

**Introduction:** Various acute and chronic demands and burdens on Intensive Care Unit (ICU) staff put them at great risk for developing psychological stress and disorders. High expectations on performance and understanding can exert enormous pressure on intensive care personnel. **Aim of work:** To assess the frequency of job stress and burnout among ICU workers and highlight the role of job stress and psychosomatic health as possible predictors of burnout subscales. **Materials and methods:** One hundred and forty ICWs including 8 physicians, 114 nurses and 18 respiratory therapists participated in the study. Physicians worked 12 hours shifts, nurses and respiratory therapists worked 8 hours shifts; all of them worked 48 hours per week. A cross-sectional study was conducted using self-administered questionnaires including socio-demographic data, job stress questionnaire (Health and Safety Executives Management Standards Indicator Tool), Maslach Burnout Inventory (MBI) and psychosomatic symptoms. **Results:** High stress levels were found among 47.8% of ICWs. High burnout levels were found among more than one tenth (11.4%) of the sample. The job demand was significant predictor of emotional exhaustion (EE) and relations at work were significant predictors for depersonalization (DP). Colleague support and clear role were significant predictors of personal achievement (PA). Sleeping problems were significant predictors for EE and PA. Chronic fatigue was significant predictor for DP. **Conclusion:** High stress levels were found among ICWs, however, these levels lead to moderate levels of burnout necessitating the immediate intervention to control predictors of burnout such as high job demand, poor relations at work and role ambiguity which can lead to prevention of burnout in different intensive care units.

**Key words:** Job stress, Burnout, ICU workers, Psychosocial stress and Organizational stress.

## Introduction

Job stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. Job stress can lead to poor health and even injury (NIOSH, 2014). Burnout syndrome (BOS) is a psychological state resulting from prolonged exposure to job stressors. Intensive care units (ICUs) are characterized by a high level of work-related stress (Le Gall et al., 2011). Burnout is a syndrome of emotional exhaustion, depersonalization and diminished personal accomplishment that has been recognized as an occupational hazard for various people-oriented professions, such as social services, health care or education (Maslach, 1976 and Maslach and Goldberg, 1998). Burnout is a type of prolonged response to chronic job-related stressors, and therefore, it has a special significance in health care where staff experience both psychological–emotional and physical stress (Wheeler and Riding, 1994, Shamian et al., 2002 and Beckstead, 2002).

Occupational burnout varies greatly in the presentation and severity of its manifestations. An important element of the syndrome is a negative impact on job performance for professionals involved in people-oriented services, especially health care professionals (Allen and Mellor, 2002). The various acute and chronic demands and burdens on ICU staff put them at great risk for developing psychological stress and disorders. High expectations on performance and the understanding that - despite maximal effort and use of high technology and pharmaceuticals (not every patient can be successfully treated) can exert enormous pressure on intensive care personnel (Lederer et al., 2008).

Although, some studies have investigated burnout symptoms among ICU health care workers in several countries like Norway, France, Austria, Egypt and Croatia, no studies for ICWs in Saudi Arabia (SA) were published. Moreover, previous research in SA has focused on job satisfaction and stress among HCWs in general rather than ICU workers in particular (Al-Sareai et al., 2013).

### **Aim of work**

The aim of current research is to: (1) assess the frequency of job stress and burnout among ICWs (nurses, physicians and respiratory therapists), highlight associated factors, (2) identify relevant organizational stress predictors for burnout syndrome subscales; and (3) evaluate inter relation between burnout subscales, job stress score and psychosomatic symptoms.

### **Materials and methods**

- **Study design:** A cross-sectional study was conducted.
- **Place and duration of study:** the study was conducted in a major tertiary care hospital in the eastern province, Khobar, Kingdom of Saudi Arabia in July and August 2014 in the intensive care department (Medical, surgical - 18 beds each - and respiratory 10 beds).
- **Study sample:** One hundred and seventy ICWs employed for more than one year were recruited. Out of these, a sample of 140 workers returned the filled questionnaire (response rate was 80%). The study subjects were 8 physicians, 114

registered nurses; and 18 respiratory therapists. All of them worked rotating shifts. Physicians worked 12 hour shifts, while nurses and respiratory therapists (RT) worked 8 hour shifts; all of them worked 48 hours per week. RT managed life support, mechanical ventilation systems, administered aerosol-based medications, monitored equipment related to cardiopulmonary therapy and conducted rehabilitation activities. The HCWs rotated between medical, surgical and respiratory beds.

- **Study methods:** Anonymous self-administered questionnaire was distributed to intensive care HCW by one of the authors (ICU specialist) during break periods over a 4-week period.

The questionnaire is formed of four main parts:-

1. The first part measures socio-demographic variables including: age, gender, marital status, ethnic group, schooling, employment status, work schedule and duration of employment.
2. The second part measures job stress using Health and Safety

Executive's Management Standards Indicator Tool which is a 35-item questionnaire relating to the seven primary stressors identified at the work place: job demands (8 items), job control (6 items), managerial support (5 items), colleague support (4 items), relationships at work (4 items), clear role at work (5 items) and awareness of organizational changes (3 items). The items are based on the best available evidence linking work design to health outcomes. It has been designed to support the process described in the Management Standards by providing a broad indication to organizations of how well their workforce rate their performance in managing the risks associated with work-related stress. The responses reflected the candidate's work in the last six months. The scores range from 1 (never) to 5 (always) A lower score indicates poor performance of management or a potential problem area. Percentile key interpretation is: <20th percentile (bottom 20% of benchmark scores) = urgent action required; ≥20th percentile = improvement needed; above or at

average but below 80th percentile = good performance but potential improvement; ≥80th percentile (top 20% of benchmark) = doing very well – need to maintain performance. Consequently, the cut off 50 percentile was used to differentiate between high stress and low stress levels (Health and safety Executive (HSE) indicator tool manual, 2004).

3. The third part measures Burnout using Maslach Burnout Inventory (MBI) which is a 22-item questionnaire developed by Maslach et al. in 1996 for measuring the severity of burnout. The questions were answered in terms of the frequency ranging from (0 = never to 6 = every day) in a seven point scale containing three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA).

The emotional exhaustion (EE) items are nine; they are questions number 1, 2, 3, 6, 8, 13, 14, 16, 20. If the results of these items scoring are: fewer than 17 means burnout below, between 18 and 29 means moderate burnout and exceeding 30 means high burnout.

The depersonalization (DP) items are five; they are questions number 5, 10, 11, 15, 22. If the results of these items scoring are: less than 5 it means burnout below, between 6 and 11 means moderate burnout, and exceeding 12 means high burnout.

Personal achievement (PA) items are eight; they are questions number 4, 7, 9, 12, 17, 18, 19, 21. If the results of these items scoring are: exceeding 40 means burnout below; below total between 34 and 39 means moderate burnout and a total of fewer than 33 means high burnout. More burnout is indicated by higher scores on emotional exhaustion and depersonalization, and lower scores on personal accomplishment. Maslach characterizes three levels of burnout: low, moderate and high.

The MBI evaluates the three domains of the BOS by independent subscales. It is the most widely employed measure and has high reliability and validity. According to some studies, burnout is defined by a high score of depersonalization subscale or a high score of emotional exhaustion subscale (Shanafelt et al., 2002) or a high total score (Embriaco et al., 2007a and Poncet et al., 2007).

4. Health-related variables including:

Psychosomatic symptom scale included the following self-reported seven symptoms: lower-back pain, tension headache, sleeping problems, chronic fatigue, stomach upset, tension diarrhea and heart palpitation. This measure was used in order to obtain information on the frequency of these symptoms during the last 12 months. Respondents were asked: “during the past 12 months, how often have you had a back-pain?” Responses were coded as often (3), sometimes (2), seldom (1), and never (0) (Piko, 2006).

### **Consent**

Verbal consent was obtained from all study participants before administering the questionnaire.

### **Ethical approval**

Formal consent was obtained from hospital management with confidentiality of hospital name in published paper. Consent from Institutional Review Board (IRB), Faculty of Medicine, Mansoura University was obtained before submission to publication.

### **Data management**

Data were analyzed using SPSS (Statistical Package for Social Science, version 16, SPSS Software, SPSS Inc., Chicago, USA). In quantitative data, mean and standards deviation were used. In categorical data, Chi-squared test was used for comparison between groups. Monte Carlo approximation test and fisher exact test were used when 50% of cell values were less than 5. Pearson's correlation coefficient was used to illustrate the relationship between continuous variables. Spearman correlation was used between ordinal variables. Log transformation for non-parametric continuous stress domains was done to allow entry into linear regression models. Significant

stressors by correlation were entered into linear regression analysis to find the independent predictors of burnout subscales. Odds ratio and 95% confidence interval were calculated.  $p \leq 0.05$  was considered statistically significant.

### **Results**

Socio-demographic characteristics of study subjects: This study was carried out on 140 ICWs who were mostly (95.7%) in the age group 35 years or less. There was a higher per cent of female ICWs (67.2%) compared to males (32.8%). Half of the group (50.7%) had worked from 6 to 11 years. The majority (73.6%) were college graduates. Physicians worked 4 shifts per month and both nurses and therapists worked 6 shifts per month.

**Table (1): Burnout and job stress levels among studied ICWs.**

Burnout subscales and job stress	Intensive care workers (ICWs) No=140	
	No	%
<b>Emotional exhaustion (EE)</b>		
Below	9	6.4
Moderate	55	39.3
High burnout	76	54.3
<i>Mean ± SD</i>	30.4 ±9.7	
<b>Depersonalization (DP)</b>		
Below	38	27.2
Moderate	37	26.4
High burnout	65	46.4
<i>Mean ± SD</i>	11.3±7.8	
<b>Personal achievement (PA)</b>		
Below	73	52.1
Moderate	33	23.6
High burnout	34	24.3
<i>Mean ± SD</i>	38.5±8.4	
<b>Total burnout</b>		
Below or Moderate	124	88.6
High burnout	16	11.4
High Job stress levels	67	47.8

Table 1 showed that slightly more than half (54.3%) of studied intensive care workers had high EE levels. Slightly less than half (46.4%) had high DP levels. Low PA levels were found in 24.3% of ICWs. High total burnout levels were found among more than one tenth (11.4%) of them the study group and high job stress levels were found in 47.8 %.

### Variation of burnout subscale according to job title

There were higher levels of EE among physician (62.5%) and nurses (55.3%) compared to respiratory therapists (38.9%) with no statistically significant differences ( $p>0.05$ ). DP levels were higher among nursing staff (48.2%) and respiratory therapists (50%) compared to physicians (12.5%) with no statistically significant differences ( $p>0.05$ ). Therapists had significantly lower PA levels (50%) than nursing staff (19.3%) and physicians (37.5%) ( $p<0.05$ ). Total burnout was not significantly different across jobs ( $p>0.05$ ) (Results are not tabulated).

**Table (2): Association of job Stress levels with burnout syndrome among ICWs.**

Stressor levels	EE		DP		PA		BOS	
	Low-Mod	High	Low-Mod	High	Low-Mod	High	Low-Mod	High
	No %		No %		No %		No %	
<b>Low <math>\geq 50</math></b>	42 (64.6)	31 (41.3)	50 (66.7)	23 (35.4)	64 (60.4)	9 (26.5)	71 (57.3)	2 (12.5)
<b>High <math>&lt;50</math></b>	23 (35.4)	44 (58.7)	25 (33.3)	42 (64.6)	42 (39.6)	25 (85.3)	53 (42.7)	14 (87.5)
<b>Test of significance</b>	$\chi^2=7.56$ , $p=.006^*$ OR (95%)= 2.6(1.3-5.14)		$\chi^2=13.6$ $p\leq.001^*$ OR (95%)= 3.6(1.8 -7.34)		$\chi^2=11.8$ , $p=.001^*$ OR (95%)= 4.2(1.8-9.9)		$\chi^2=11.37$ $p=.001^*$ OR (95%)= 9.3(2.04-43.03)	

\*:Statistically significant  $p<0.05$

EE: Emotional exhaustion

DP: Depersonalization

PA: Personal achievement

BOS: Burnout syndrome

Mod: Moderate

According to safety health executives standards, the workers who had high stressor levels (scored  $< 50$  percentile of total score) suffered from high EE, DP and low PA levels suggestive of high burn out with statistically significant difference compared to lower stressor levels group (scored  $\geq 50$  percentile).

**Table (3): Demographic and occupational factors for burnout and job stress.**

	BOS		Significance Test	Job Stress		Significance Test
	Low	High		Low	High	
	No (%)			No (%)		
<b>Age</b>						
<35 years	118(95.2)	16(100)	p>0.05 <sup>#</sup>	69(94.5)	65(97)	p>0.05 <sup>#</sup>
≥35 years	6(4.8)	0(0)		4(5.5)	2(3)	
<b>Sex</b>						
Male	36(29)	8(50)	χ <sup>2</sup> =0.39 p>0.05	15(20.5)	29(43.3)	χ <sup>2</sup> =8.3 p<0.05*
Female	88(71)	8(50)		58(79.5)	38(56.5)	
<b>Marital status</b>			χ <sup>2</sup> =2.4 p>0.05			χ <sup>2</sup> =0.04 p>0.05
Single	37(29.8)	6(37.5)		23(31.5)	20(29.9)	
Married	87(70.2)	10(62.5)		50(68.5)	47(70.1)	
<b>Ethnic groups</b>						
Black	2(16)	0(0)	χ <sup>2</sup> =9.9 p<0.05* <sup>§§</sup>	2(2.7)	0(0)	χ <sup>2</sup> =2.6 p<0.05* <sup>§</sup>
Colored	17(13.7)	7(43.8)		12(16.4)	12(17.9)	
Asian	76(61.3)	5(31.2)		44(60.3)	37(55.2)	
White	29(23.)	4(25)		15(20.5)	18(26.9)	
<b>Educational level</b>						
Technical school	22(17.7)	1(6.2)	χ <sup>2</sup> =4.2 <sup>§</sup> p>0.05	14(19.2)	9(13.4)	χ <sup>2</sup> =4.2 p> 0.05 <sup>§</sup>
College degree	91(73.4)	12(75)		54(74)	49(73.1)	
Master degree	8 (6.5)	3(18.8)		3(4.1)	8(11.9)	
MD degree	3 (2.4)	0(0)		2(2.7)	1(1.5)	
<b>Job title</b>						
Physician	7(5.6)	1(6.2)	χ <sup>2</sup> =2.4 p>0.05	4(5.5)	4(6)	χ <sup>2</sup> =0.05 <sup>§</sup> p>0.05
Nurses	103(83.1)	11(68.8)		60(82.2)	54(80.6)	
Resp-therapist	14(11.3)	4(25)		9(12.3)	9(13.4)	
<b>Duration of employment</b>						
<10 years	104(83.9)	15(93.8)	χ <sup>2</sup> =1.08, p>0.05	63(86.3)	56(83.6)	χ <sup>2</sup> =0.2 p>0.05
≥10years	20(16.1)	1(6.2)		10(13.7)	11(16.4)	

<sup>#</sup>:Fisher's exact test, <sup>§</sup>:Monte Carlo significance test. \*: Statistically significant p <0.05,

BOS: Burnout syndrome

There were no statistically significant differences between high burnout and low burnout groups as regards age, gender, marital status, educational level, job title or duration of employment. However, there was a statistically significant difference for ethnicity between groups ( $p < 0.05$ ). For associated factors with high stress, females had higher stress levels than males ( $p < 0.05$ ).

**Table (4): Correlation between burnout subscales and different job stressors.**

	<b>Emotional exhaustion EE</b>	<b>Depersonalization DP</b>	<b>Personal Achievement PA</b>
	<b>r (p)</b>	<b>r (p)</b>	<b>r (p)</b>
<b>Demand</b>	-.43 (<0.001)*	-.27 (<0.001)*	-.003(>0.05)
<b>Control</b>	-.01 (>0.05)	.09 (>0.05)	.27 (<0.001)*
<b>Managerial support</b>	-.05 (>0.05)	.046 (>0.05)	.11 (0.193)
<b>Colleague support</b>	.07 (>0.05)	.05 (>0.05)	.49 (<0.001)*
<b>Relation</b>	-.34 (<0.001)*	-.36 (<0.001)*	.02 (0.81)
<b>Role</b>	-.036 (>0.05)	-.096 (>0.05)	.53 (<0.001)*
<b>Change at work</b>	.029 (>0.05)	.08 (>0.05)	.35 (<0.001)*

\*:  $p < 0.05$  statistically significant.

Table 4 showed that there is significant moderate negative correlation between job demand in relation with EE scale ( $p < 0.01$ ). Moreover, there is significant weak negative correlation between job demand and interpersonal relations with DP ( $p < 0.01$ ). Job control, colleague support, clear role and job changes awareness are positively correlated with PA ( $p < 0.01$ ).

Weak negative correlation was found between stress scores and back pain, tension headache, and sleeping problems (0.28, 0.27, 0.36; respectively) ( $p < 0.05$ ). Sleeping problems were positively correlated with emotional exhaustion and depersonalization ( $r = 0.25$ ,  $p < 0.05$ ) (Results are not tabulated).

**Table (5): Multiple regression analysis for predictors of burnout subscales.**

Predictors	EE	DP	PA
	<i>Beta</i>		
Demand	-0.8*	-0.08	
Control			-0.21
Colleagues support (log)			11.7*
Relation (log)	4.4	-11.9*	
Role (log)			18.9*
Change at work (log)			2.6
<i>Constant</i>	61.9	44.14	-53.5
<i>Model F</i>	15.8	11.43	20.7
<i>Adjusted R<sup>2</sup></i>	0.17	0.13	0.61
<i>P value</i>	<.001	<.001	<.001

\*: p<0.05 statistically significant,

EE: Emotional exhaustion

DP: Depersonalization

PA: Personal achievement.

Job demand was statistically significant predictor of emotional exhaustion and interpersonal relations at work for depersonalization. Colleague support and clear role were significant positive predictors of PA.

However, job control predicted PA with no statistical significance (p>0.05) (Results are not tabulated).

Also, Sleeping problems were statistically significant predictors for EE and PA. Chronic fatigue was a statistically significant predictor for DP (Results are not tabulated).

## Discussion

An Intensive Care Unit (ICU) can be full of stressful situations for patients, relatives and healthcare professionals. A growing body of evidence suggests that burnout among ICU nurses (Schaufeli et al., 1995) and ICU physicians (Embriaco et al., 2007(b) is a remarkable result of the demanding and continuously high stress work environment. It has been suggested that ICU professionals could be emotionally affected by end-of-life issues (Todaro-Franceschi, 2013), ethical decision making (Teixeira et al., 2013), observing the continuous suffering of patients (Todaro-Franceschi, 2013), disproportionate care or medical futility (Kompanje et al., 2013), miscommunication (Curtis et al., 2014), and demanding relatives of the patients.

Based on our results, ICWs had higher emotional exhaustion (54.3%) levels, higher depersonalization levels (46.4%), and lower personal achievement levels (24.3%) (Table 1) than those found in Primary Health care (PHC) physicians in Asir province, Saudi Arabia (29.5% ,15.7% and 19.7% respectively) (Al-Sareai et al., 2013) .

Similar to these results, Guntupalli et al. (2014) investigated the incidence of burnout amongst nurses and respiratory therapists in a single US hospital, using the well-validated Maslach Burnout Inventory. The authors reported that 54% of 213 ICWs scored moderate to high on emotional exhaustion scale, 40% scored moderate to high on the depersonalization scale, whereas 40.6% scored low on the personal accomplishment scale. The authors could not identify the factors that may be independently associated with burnout, though surprisingly they did find that night shifts were associated with less burnout and that working overtime hours was not associated with burnout. In addition, an Egyptian study on university career anaesthiologists found that emotional exhaustion, depersonalization and reduced personal capacity were 62.2%, 56.1% and 58.2 %; respectively (Shams and El Masry, 2013). Current study results showed that 11.4% of ICWs had high burnout (68.8% nurses, 25% respiratory therapists and 6.2% physicians) (Table 3). These results were different from results of Embriaco et al. (2007) b who reported that severe burnout was found

in one third of the nursing staff and 50% of critical care physicians in ICUs in France. High burnout levels in the current study were nearly double those of PHC physicians in SA (6.3%) (AL-Sareai et al., 2013).

High stress levels were found among 47.8% of ICWs in the tertiary care hospital in SA (Table 1). These levels are less than the encountered job stress level (69.4%) in an Egyptian study where authors used workplace stress scale and study group included physicians only in Mansoura University Hospitals (MUH) (Shams and El Masry, 2013).

Current study results revealed that age, marital status, education, ethnic group, job title or duration of work did not affect the occurrence of high stress levels according to health and safety executive standards. But, there were significantly higher stress levels among females compared to males with significant difference (Table 3). These results came in agreement with Khuwaja et al. (2004) who found that female doctors had significantly lower satisfaction about workload, relation with colleagues and autonomy as

compared to their male counterparts. Also, females have double role at home beside work duties which may explain perceived high stress levels.

Although, high burnout was not significantly different according to age, gender, marital status or education, it was more common among colored groups of workers (43.8%) (Table 3). Racial and ethnic minorities have health that is worse overall than the health of white Americans. Health disparities may stem from economic determinants; education; geography and neighborhood; environment; lower-quality care; inadequate access to care; inability to navigate the system; and provider ignorance/bias and/or stress (Bahls, 2011). Studies examining the role of social and biological stress on health suggest a link between socioeconomic status and ethnic disparities in stress and health (Warnecke et al, 2008). Some ethnic/racial groups are more economically disadvantaged and may be more susceptible to socioeconomic status (SES) related stress (American Psychological Association, 2011). Our results indicate that there was no significant effect for job description

or duration of employment on the occurrence of high BOS among ICWs (Table 3). However, Embriaco et al. (2007)a reported higher BOS among younger age intensivists. In addition, Piko (2006) reported variability of burnout subscales according to age, gender and schooling in Hungarian HCWs. In addition, previous studies found more burnout among females (Raggio and Malacarne, 2007) and more burnout among physicians (Embriaco et al., 2007a; Embriaco et al., 2007b and Poncet et al., 2007). Other studies found less burnout symptoms among females (Merlani et al., 2011 and Shams and El Masry, 2013).

Emotional exhaustion or depersonalization did not differ significantly between different occupations in the same department. However, lower personal achievement was found more among respiratory therapists (50%) than among nursing staff (19.3%) and physicians (37.5%) with statistically significant difference ( $p=0.007$ ) (results are not tabulated). These findings can be explained by low job control and less promotion opportunities with lack of job variation in respiratory therapists.

Studying the links between stress and burnout in UK physicians, McManus and colleagues (2002) showed that there was a causal cycle in which emotional exhaustion makes doctors more stressed and stress makes doctors more emotionally exhausted. Current study confirmed the above findings as there was significantly higher risk of EE [OR (95%)=2.6(1.3 -5.14)], DP [OR (95%)= 3.6 (1.8 -7.34)] and lower PA levels [OR (95%)=4.2(1.8-9.9)] in high stressor level groups compared to lower ones according to HSE management standards (Table 2).

In addition, emotional exhaustion and depersonalization levels were negatively correlated with low demands and good interpersonal relations ( $p<0.05$ ). PA levels increased with increasing decision control, social support from colleagues, clear role and both awareness and sharing in work changes ( $p<0.05$ ). Moreover, high job demands and bad interpersonal relations were significant predictors of EE and DP. Colleague support and clear role were significant predictors of PA (Table 5). Similar to these findings, Embriaco et al.(2007)(b) detected

that perceived conflicts and poor relationships with other staff members were strong independent factors for severe BOS. Therefore, preventing conflicts and improving communication in ICU may decrease the risk of severe BOS. Besides, clearer duties and objectives of critical care organizations can increase PA and reduce the risk of BOS. Moreover, Myhren et al. (2013) found that low job satisfaction and high job stress were predictors of burnout (EE); causality is difficult to prove, particularly in a cross-sectional study. However, it is likely that burnout has multiple causes and job satisfaction, job stress, and vulnerable personality may be important factors.

Based on our results, EE was positively correlated with heart burn, chronic fatigue, tension, diarrhea and sleeping problems. DP was positively correlated with sleeping problems, chronic fatigue and heart burn. PA was negatively correlated with sleeping problems only (results are not tabulated). These results are in agreement with Piko (2006) who reported that emotional exhaustion was positively correlated with psychosomatic symptom scores,

role conflict, and negatively with job satisfaction. Depersonalization positively correlated with psychosomatic symptoms, role conflict, and negatively with job satisfaction. Similar burnout correlates to emotional exhaustion. Personal accomplishment was positively associated with job satisfaction and negatively with psychosomatic symptoms and role conflict.

Predicting and preventing burnout syndrome in intensive care units should be a priority. With the exception of demographic factors, professional relationships and working conditions can be improved. The objective is to reduce stressors. Individual strategies have been proposed to prevent burnout. They include stress management training, relaxation, time management, assertiveness training, training in interpersonal and social skills, team building and meditation (Maslach et al., 2001). This study covered three occupations present in ICU highlighting the most important aspects in the psychosocial work environment with its relation to burnout and psychosomatic symptoms.

Limitations of study: Determinants of burnout and job stress among each category was not feasible due to small number of physicians and respiratory therapists. Effect of burnout on job prospective like desire to change work or leave the profession was not studied .The single center design of current research could have been a limitation as each center has a limited number of physicians and multicenter study might be needed.

### Conclusion

Having evidence that burnout exists, it is important to understand the magnitude of the problem and risk factors to direct effective measures to prevent burnout. Severe burnout syndrome can affect quality of care given to patients and can be prevented by controlling high stress levels in ICUs. High stress levels were found among 47.8% of ICWs in tertiary care hospital at SA. High burnout levels were found among more than one tenth (11.4%) of them. High job demands was significant predictor of EE and bad interpersonal relations was significant predictor for DP. Colleague support and clear role were significant predictors of

PA. Sleeping problems were significant predictors for EE and PA. Chronic fatigue was significant predictor for DP.

### Conflict of interest

The authors declare that there is no conflict of interests.

### Funding

None

### References

1. Allen J and Mellor D (2002): Work context, personal control, and burnout amongst nurses. *Western Journal of Nursing Research*; 24: 905–17.
2. Al-Sareai NS and Al-Khaldi YM (2013): Magnitude and risk factors for burnout among primary health care physicians in Asir province, Saudi Arabia *East Mediterr Health J* ;19(5):426–34.
3. American Psychological Association (2011): Stress: The different kinds of stress. <http://www.apa.org/helpcenter/stress-kinds.aspx>.
4. Bahls C (2011): Health policy brief: achieving equity in health. *Health Affairs Brief*, 1-6. Retrieved from <http://www.healthaffairs.org>.
5. Beckstead JW (2002): Confirmatory factor analysis of the Maslach Burnout Inventory among Florida nurses. *International Journal of Nursing Studies*; 39: 785–792.
6. Curtis JR, Sprung CL and Azoulay E (2014): The importance of word choice in the care of critically ill patients and their families. *Int Care Med*; 40: 606–8.
7. Embriaco N , Azoulay E , Barrau K , Kentish N, Pochard F, Loundou A et al.( 2007)a: High level of burnout in intensivists: M prevalence and associated factors. *Am J Respir Crit Care Med*; 175 (7): 686–92.
8. Embriaco N, Papazian L, Kentish-Barnes N, Pochard F and Azoulay E (2007) b: Burnout

- syndrome among critical care healthcare workers. *Curr Opin Crit Care*; 13(5):482-8. PMID: 17762223.
9. Guntupalli KK, Sherry W, Mallampalli A and Surani S (2014): Burnout in the intensive care unit professionals. *Indian J Crit Care Med*; 3:139–33.
  10. Health and Safety Executive (HSE) (2004): Management Standards Analysis tool 153, user manual Health and Safety Executive, Northern Ireland (<http://www.hseni.gov.uk>).
  11. Tool available on line at <http://www.hse.gov.uk/stress/standards/pdfs/indicatortool.pdf>. Last accessed Feb, 2016.
  12. Khuwaja AK, Qureshi R, Andrades M, Fatmi Z and Khuwaja NK (2004): Comparison of job satisfaction and stress among male and female doctors in teaching hospitals of Karachi. *J Ayub Med Coll Abbottabad*; 16(1):23-27.
  13. Kompanje EJ, Piers RD and Benoit DD (2013): Causes and consequences of disproportionate care in intensive care medicine. *Curr Opin Crit Care*; 19: 630–35. doi: 10.1097/MCC.0000000000000026.
  14. Le Gall JR, Azoulay E, Embriaco N, Poncet MC and Pochard F (2011): Burn out syndrome among critical care workers. *Bull Acad Natl Med*; 195(2):389-97.
  15. Lederer W, Kinzl JF, Traweger C, Dosch J and Sumann G (2008): Fully developed burnout and burnout risk in intensive care personnel at a university hospital. *Anaesth Intensive Care*; 36: 208-13.
  16. Maslach C (1976): Burn out. *Human Behavior*; 5: 16–22.
  17. Maslach C and Goldberg J (1998): Prevention of burnout: New perspectives. *Applied and Preventive Psychology*; 7:63–74.
  18. Maslach C, Jackson S and Leiter MP (1996): *Maslach Burnout Inventory Manual*. Palo Alto: Consulting Psychologists Press.
  19. Maslach C, Schaufeli WB and Leiter MP (2001): Job burnout. *Annu Rev Psychol*; 52:397–422.
  20. McManus IC, Winder BC and Gordon D (2002): The causal links between stress and burnout in a longitudinal study of UK doctors. *Lancet*; 15(359):2089-90.
  21. Myhren H, Ekeberg O and Stokland O (2013): Job Satisfaction and Burnout among Intensive Care Unit Nurses and Physicians. *Crit Care Res Pract*; 786176. doi: 10.1155/2013/786176. Epub 2013 Nov 5.
  22. Merlani P, Verdon M, Businger A, Domenighetti, G, Pargger H et al. (2011): Burnout in ICU caregivers: a multicenter study of factors associated to centers. *Am J Respir Crit Care Med*; 184(10): 1140–46.
  23. National Institute of Occupational safety and Health (2014): Stress at work. Available at <https://www.cdc.gov/niosh/docs/99-101/> on 8th of November 2016.
  24. Piko BF (2005): Burnout, role conflict, job satisfaction and psychosocial health among Hungarian health care staff: a questionnaire survey. *Int J Nurs Stud*; 43(3):311-8.
  25. Poncet MC, Toulliec P, Papazian L, Kentish-Barnes N, Timsit JF et al. (2007): Burnout syndrome in critical care nursing staff. *Am J Respir Crit Care Med*; 175(7): 698–704.
  26. Raggio B and Malacarne P (2007): Burnout in intensive care unit. *Minerva Anestesiologica*; 73(4): 195–200.
  27. Schaufeli WB, Keijsers GJ and Reis Miranda D (1995): Burnout, technology use, and ICU-performance. In: *Organizational risk factors for job stress*. Sauter SL, Murphy LR eds. APA Books, Washington pp 259–271.
  28. Shamian J, Kerr MS, Laschinger HK and Thomson D (2002): A hospital-level analysis of the work environment and workforce health indicators for registered nurses in Ontario's acute-care hospitals. *Can J Nurs*; 33:35–50.
  29. Shams T1 and El-Masry R (2013): Job Stress and Burnout among Academic Career Anaesthesiologists at an Egyptian University Hospital. *Sultan Qaboos Univ Med J*; 13(2):287-95.
  30. Shanafelt TD, Bradley KA, Wipf JE and Back AL (2002): Burnout and self-reported patient care in an internal medicine residency program. *Ann Intern Med*; 136:358–367.
  31. Teixeira C, Ribeiro O, Fonseca AM and Carvalho AS (2013): Ethical decision making

- in intensive care units: a burnout risk factor? Results from a multicentre study conducted with physicians and nurses. *J Med Ethics*; 40(2): 97–103. doi: 10.1136/medethics-2012-100619 PMID: 23408707.
32. Todaro-Franceschi V (2013): Critical care nurses' perceptions of preparedness and ability to care for the dying and their professional quality of life. *DCCN*; 32:184–190. doi: 10.1097/DCC.0b013e31829980af PMID: 23759913
33. Warnecke R, Oh A, Breen N, Gehlert S, Paskett E et al. (2008): Approaching health disparities from a population perspective: the National Institutes of Health Centers for Population Health and Health Disparities. *Am J Public Health*; 98(9): 1608-15.
34. Wheeler H and Riding R (1994): Occupational stress in general nurses and midwives. *Br J Nurs*; 3:527–34.