

# Burnout among Egyptian health care workers and its associations

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## Background

Burnout is considered to be an important health problem that is faced by HCWs.

## Aims

To measure burnout prevalence and to analyze its association with sociodemographic and occupational features among different sectors of Egyptian health care workers (HCWs).

## Patients and methods

A cross-sectional study was conducted via some internet social media platforms to groups of HCWs in April 2020. The Maslach Burnout Inventory and sociodemographic and occupational questionnaires were applied. The Maslach Burnout Inventory is divided into three subscales: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). High EE and DP scores and low PA scores indicate burnout in these HCWs. Data analysis was done using descriptive statistics and  $\chi^2$  test.

## Results

A total of 143 HCWs participated in this survey. Most of them were under the age of 40 years. Based on our analysis, 93 (65%) respondents had a high EE score, 53 (37.1%) had a high DP score, and 45 (31.5%) had a low PA score. Four variables including age, sex, marital status, and duration of employment had a significant association with high EE, whereas five variables were associated with low PA score, such as age, sex, kind of health care work, duration of employment, and country of working.

## Conclusion

This study sheds light on the heterogeneous entity of burnout and some of its associated factors. Age and place of work are important factors in presence or absence of burnout, whereas sex and profession did not appear to play a big role in determining burnout.

## Keywords:

burnout, Egyptian, health care workers, Maslach

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## Introduction

Good mental health of health care workers (HCWs) represents a cornerstone for health care service. Burnout is considered to be an important health problem that is faced by HCWs. Burnout is an epidemic of the modern world and is of increasing importance throughout the world (Schaufeli and Greenglass, 2001; Sabbah *et al.*, 2012). Freudenberg, (1974) was the first one that described burnout in his paper(). Burnout is a multifactorial medical condition. American psychologist Christina Maslach described burnout in terms of emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA) (Maslach *et al.*, 1997), and identified six risk factors for burnout including work load and control mismatch, conflict between values, insufficient suitable awards, negative relationship with coworkers and supervisors, and perceived unfairness (Maslach *et al.*, 2001). Other factors have been identified to be related to burnout,

including age, sex, shift duration, type of institution, and type of health care working (Cañadas-De la Fuente *et al.*, 2015). Burnout has many negative consequences on the patients care, health organization, and HCWs' own health. Regarding patients' care, burnout can lead to poor care quality, medical errors, longer recovery times, and lower patient satisfaction (West *et al.*, 2006; Wallace *et al.*, 2009; West *et al.*, 2009; Shanafelt *et al.*, 2010). Burnout may also affect health organizations, it can lead to increased HCW turnover, reduced their productivity, less patient access, and increased costs (Dyrbye and Shanafelt, 2011; Shanafelt *et al.*, 2016). Moreover, poor self-care, substance abuse, motor vehicle crashes, anxiety, depression, and perhaps suicidal ideation are among the negative

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consequences of burnout on HCWs (Shanafelt *et al.*, 2011; West *et al.*, 2012). In addition, nature of health care work may contribute to the high prevalence of burnout among HCWs (de Paiva *et al.*, 2017). There is a wide variability of burnout prevalence among different societies (Rotenstein *et al.*, 2018). In Egypt, a study evaluated the prevalence of burnout among health care providers in Aswan University and showed 51.2% had high EE, 32.9% had high DP, whereas 39% had low PA among participants (Osman and Abdlrheem, 2019). Another study on the nursing staff of Beni-Seuf University Hospital reported the percentage of EE was 26.9%, the DP was 48%, and low PA was 2.2% (Anwar and Elareed, 2017).

This work aims to measure the prevalence of burnout among different sectors of Egyptian HCWs in and outside Egypt and to identify the associations of burnout.

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## Patients and methods

### Ethical consideration

The present study is a descriptive study, that doesn't include clinical trial, was executed based upon the recommendations of the ethical research board of the faculty of medicine, Al-Azhar University, Cairo, Egypt.

This cross-sectional study was conducted with the aid of internet social media platforms to deliver an online survey to groups of HCWs. Google form of sociodemographic data and Maslach Burnout Inventory were uploaded for a whole week in April 2020. A total of 179 HCWs responded and filled out the questionnaires. A total of seven responders were initially excluded as they were not practicing their job at the time of filling out the questionnaires for more than one year. The remaining 172 responders underwent a telephone interviewing, using semistructured clinical interview to exclude participants who showed clinical symptoms of psychiatric or chronic neurologic disorders. Each interview lasted 20–30 min. A total of nine participants had anxiety disorders (five GAD and four panic disorder), two were diagnosed previously and known to be bipolar, 15 had clinical depressive symptoms, and three participants were also previously diagnosed with epilepsy and were then excluded from the study. After exclusion of noneligible participants, the remaining 143 participants underwent statistical evaluation.

The research protocol included a questionnaire with sociodemographic features (age, sex, and marital status)

and occupational variables (specialty and subspecialty as a HCW and duration of work in this specialty).

It also included Maslach Burnout Inventory, which is subdivided into three scales. The first subscale is the EE subscale which contains nine items and measures fatigue and depletion of a person's emotional sources to the level by which he/she is unable to give proper service. This dimension is the main element of burnout and appears in the form of physical or psychological symptoms, or both. The second subscale is the DP scale which measures the negative change in attitudes and responses toward others, especially those who receive health care services; it also measures the speed of anger, irritability, and loss of appreciation for work, as well as cynical trends toward patients and their families. The third subscale is PA subscale which evaluates the extent of a person's tendency to evaluate his accomplishments negatively, and which affects the person with many symptoms such as depression, withdrawal, lack of productivity, a feeling of failure, and poor self-esteem. The response is graded from 0 to 6 on a Likert scale. Zero means never and 6 means everyday (Maslach *et al.*, 1996).

### Statistical analysis

Data were fed to the computer and analyzed using IBM SPSS software package, version 20.0. (IBM Corp., Armonk, New York, USA). Comparisons between groups for categorical variables were assessed using the  $\chi^2$  test (Monte Carlo). The significance of the obtained results was judged at the 5% level.

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## Results

A total of 143 HCWs took the survey, and most of them younger than 40 years (Table 1): 69 (48.3%) persons were aged between 30 and 40 years, and 62 (43.4%) were under the age of 30 years. There were 87 (60.8%) females included in the analysis, and 76 (53.1%) of the participants were not married. Our survey included many specialties of HCWs, but the main sector was doctors  $n=78$  (54.5%). We categorized the period since starting the work 'duration of employment' as a HCW ad hoc to six categories, 5 years for each. The first category (work <5 years) includes 63 (44.1%) of the participants. Regarding country of work, most of participants are currently working in Egypt [122 (85.3%)]. Table 2 shows Maslach Burnout Inventory scores. High scores in EE and DP or low scores in PA are considered as an indicator for burnout. Based on our analysis, 93 (65%) respondents had high EE score, 53 (37.1%) had high DP score, and 45 (31.5%) had low PA score.

Tables 3–5 demonstrate the association between each subscale and different parameters. Age group

**Table 1** Distribution of the studied cases according to different parameters (N=143)

	n (%)
Age (years)	
<30	62 (43.4)
30–40	69 (48.3)
40–50	11 (7.7)
>50	1 (0.7)
Sex	
Male	56 (39.2)
Female	87 (60.8)
Marital status	
Not married	76 (53.1)
Married	67 (46.9)
Working	
Doctor	78 (54.5)
Psychologist	12 (8.4)
Pharmacist	24 (16.8)
Dentist	2 (1.4)
Nursing	18 (12.6)
Lab. technician	7 (4.9)
Physical therapist	2 (1.4)
Subspecialty	
Medicine	55 (38.5)
Psychology	12 (8.4)
Surgery	16 (11.2)
Clinical pharmacist	2 (1.4)
Dentist	8 (5.6)
Community pharmacist	8 (5.6)
Physical therapy	3 (2.1)
Pediatric nurse	3 (2.1)
Stroke unit	3 (2.1)
Lab. technician	7 (4.9)
Biotechnology quality control specialist	1 (0.7)
Hospital pharmacist	8 (5.6)
General nursing	9 (6.3)
Medical representative	2 (1.4)
Cardio thoracic operations	3 (2.1)
Technical officer – regulatory	1 (0.7)
Premaster in pharmacology and toxicology department	1 (0.7)
Hospital pharmacist/community pharmacist	1 (0.7)
Duration of working in medical specialty (years)	
<5	63 (44.1)
5–10	46 (32.2)
11–15	25 (17.5)
16–20	7 (4.9)
21–25	1 (0.7)
25–30	1 (0.7)
Country of work	
Egypt	122 (85.3)
The Arab world	12 (8.4)
Europe	9 (6.3)

less than 30 years old (56.6%) showed highest score of DP, which was also high in females more than males, and in nonmarried than married, as shown in Table 3.

**Table 2** Distribution of the studied cases according to different parameter (N=143)

	n (%)
Depersonalization	
Low	49 (34.3)
Moderate	41 (28.7)
High	53 (37.1)
Personal accomplishment	
Low	45 (31.5)
Moderate	31 (21.7)
High	67 (46.9)
Emotional exhaustion	
Low	8 (5.6)
Moderate	42 (29.4)
High	93 (65)

In Table 4, there were five variables associated with low PA score: age, sex, specialty, duration of employment, and country of work. The low PA was significantly more prevalent in the age group 40–50 years (72.72%), and in males (37.5%) more than females (27.25%). Moreover, low PA was significantly more prevalent in nursing (66.67%) than physical therapy (50%). HCWs who spent 16–20 years practicing their carrier had the most prevalent low PA score (71.42%). Being a HCW in Europe is associated with low PA (44.4%).

Four variables including age, sex, marital status, and duration of employment had a significant association with EE.

Table 5 shows that high EE was significantly prevalent in the age group less than 30 years (77.4%) than in the age group of 30–40 years (60.9%). The prevalence of high EE is significantly more in females (75.86%) than males (48.2%), and also more in nonmarried (77.6%) than married (50.7%) HCWs. There was a negative correlation between the duration of employment and the prevalence of high EE. HCWs who spent less than 5 years in their carrier have the highest prevalence (76.19%) of high EE. There was no association between high EE and country of working, specialty, or duration of employment.

## Discussion

Working in the health care system makes its members vulnerable to many pressures, which increase the rate of psychological burnout (McKinley *et al.*, 2017). Psychological burnout in HCWs has many negative effects not only on patients' care but also on health care system and HCWs' health (West *et al.*, 2006; Wallace *et al.*, 2009; West *et al.*, 2009; Shanafelt *et al.*, 2010; Dyrbye and Shanafelt, 2011; Shanafelt *et al.*, 2011; West *et al.*, 2012). The goal of our study was to evaluate the prevalence of burnout syndrome among Egyptian HCWs

**Table 3 Relation between depersonalization and different parameters (N=143)**

	Depersonalization			$\chi^2$	P
	Low (N=49)	Moderate (N=41)	High (N=53)		
Age (years)					
<30	19 (38.8)	13 (31.7)	30 (56.6)	10.854	0.057
30–40	23 (46.9)	24 (58.5)	22 (41.5)		
40–50	6 (12.2)	4 (9.8)	1 (1.9)		
>50	1 (2)	0	0		
Sex					
Male	22 (44.9)	15 (36.6)	19 (35.8)	1.035	0.596
Female	27 (55.1)	26 (63.4)	34 (64.2)		
Marital status					
Not married	23 (46.9)	20 (48.8)	33 (62.3)	2.842	0.242
Married	26 (53.1)	21 (51.2)	20 (37.7)		
Working					
Doctor	28 (57.1)	20 (48.8)	30 (56.6)	9.758	0.622
Psychologist	5 (10.2)	4 (9.8)	3 (5.7)		
Pharmacist	5 (10.2)	10 (24.4)	9 (17)		
Dentist	1 (2)	0	0		
Nursing	6 (12.2)	3 (7.3)	9 (17)		
Lab. Technician	3 (6.1)	3 (7.3)	1 (1.9)		
Physical therapist	1 (2)	1 (2.4)	0		
Duration of working in medical specialty (years)					
<5	18 (36.7)	14 (34.1)	31 (58.5)	13.434	0.124
5–10	14 (28.6)	18 (43.9)	14 (26.4)		
11–15	12 (24.5)	6 (14.6)	7 (13.2)		
16–20	3 (6.1)	3 (7.3)	1 (1.9)		
21–25	1 (2)	0	0		
25–30	1 (2)	0	0		
Country of work					
Egypt	41 (83.7)	34 (82.9)	47 (88.7)	1.814	0.796
The Arab world	5 (10.2)	3 (7.3)	4 (7.5)		
Europe	3 (6.1)	4 (9.8)	2 (3.8)		

Data was expressed using  $n$  (%).  $\chi^2$ ,  $\chi^2$  test. P: P value for association between different categories.

and to explore the associated risk factors. The present study revealed high levels of burnout among participants. Among the studied HCWs, there were 65% with high EE, 37.1% with high DP, and 31.5% with low PA. These results came in line with other Egyptian studies, for example, studying burnout in HCWs in Aswan University Hospital revealed 51.2% had high EE, 32.9% had high DP, and low PA was seen in 39% (Osman and Abdlrheem, 2019) and contradicted some other Egyptian studies like this study on physicians and nurses working in emergency hospital of Tanta University, which revealed lower proportions of all subscales of burnout. It showed zero percentage of low PA, 46.9% in high EE, and 14.4% in DP (Abdo *et al.*, 2016). Moreover, it contradicts a study conducted in Beni-Seuf University Hospital on nursing staff and revealed higher DP (48%) but lower prevalence of high EE (26.9%) and low PA (2.2%) (Anwar and Elareed, 2017).

In Arab countries, studies conducted on HCWs showed a great variation in the prevalence of

burnout (Al-Dubai and Rampal, 2010; Hamaideh, 2011; Sabbah *et al.*, 2012; Kumar *et al.*, 2013), and hence the results of our study showed some similarities to some of these studies. Compared with our results, studies from non-Arab countries showed lower proportions of all burnout subscales and were generally recorded by US physicians, Spanish oncologists, and Ecuadorian health care professionals (Shanafelt *et al.*, 2012; Font *et al.*, 2015; Ramírez *et al.*, 2017).

Sociodemographic features, organizational policies, work load, specialty, subspecialty, and country of origin may contribute to the difference in the level of burnout (Soler *et al.*, 2008). In this study, increasing age was associated with more prevalence of low PA, there was no association between age and DP, but lower age was associated with more prevalent high EE. Similarly, increasing age was significantly associated with level of burnout in HCWs from Tanta University, and with low PA perception in Lebanese nurses (20–29 years vs. 30 years and plus) ( $\beta=-3.55$ ,  $P=0.01$ ) (Sabbah

**Table 4 Relation between personal accomplishment and different parameters (N=143)**

	Personal accomplishment			$\chi^2$	P		
	Low (N=45)	Moderate (N=31)	High (N=67)				
Age (years)							
<30	16 (35.6)	10 (32.3)	36 (53.7)	14.305*	0.012*		
30–40	20 (44.4)	20 (64.5)	29 (43.3)				
40–50	8 (17.8)	1 (3.2)	2 (3)				
>50	1 (2.2)	0	0				
Sex							
Male	21 (46.7)	16 (51.6)	19 (28.4)	6.363*	0.042*		
Female	24 (53.3)	15 (48.4)	48 (71.6)				
Marital status							
Not married	22 (48.9)	15 (48.4)	39 (58.2)	1.299	0.522		
Married	23 (51.1)	16 (51.6)	28 (41.8)				
Working							
Doctor	22 (48.9)	21 (67.7)	35 (52.2)	20.735*	0.024*		
Psychologist	4 (8.9)	3 (9.7)	5 (7.5)				
Pharmacist	4 (8.9)	4 (12.9)	16 (23.9)				
Dentist	0	1 (3.2)	1 (1.5)				
Nursing	12 (26.7)	0	6 (9)				
Lab. technician	2 (4.4)	1 (3.2)	4 (6)				
Physical therapist	1 (2.2)	1 (3.2)	0				
Duration of working in medical specialty (years)							
<5	17 (37.8)	9 (29)	37 (55.2)			21.807*	0.005*
5–10	10 (22.2)	16 (51.6)	20 (29.9)				
11–15	11 (24.4)	4 (12.9)	10 (14.9)				
16–20	5 (11.1)	2 (6.5)	0				
21–25	1 (2.2)	0	0				
25–30	1 (2.2)	0	0				
Country of work							
Egypt	38 (84.4)	22 (71)	62 (92.5)	9.193*	0.041*		
The Arab world	3 (6.7)	5 (16.1)	4 (6)				
Europe	4 (8.9)	4 (12.9)	1 (1.5)				

Data was expressed using  $n$  (%).  $\chi^2$ ,  $\chi^2$  test. P: P value for association between different categories. \*Statistically significant at P value less than or equal to 0.05.

*et al.*, 2012; Abdo *et al.*, 2016). Several studies reported significant reverse correlation between age and EE (Campbell *et al.*, 2001; Gabbe *et al.*, 2002; Ozyurt *et al.*, 2006). A study conducted on French HCWs reported no significant difference between HCWs with burnout and those without burnout (Malaquin *et al.*, 2017).

Our results showed a significant association of sex with EE and PA but no association with DP. Low PA was more prevalent in males than females, whereas high EE was more prevalent in females than males. These findings support the Jordanian study conducted on Jordanian mental health professionals, which revealed significant more prevalence of high EE and low PA in males than females (Hamaideh, 2011), whereas other studies showed no significant association between sex and all burnout subscales like this from Lebanon and Aswan and the French study on a critical care team (Sabbah *et al.*, 2012; Malaquin *et al.*, 2017; Osman and Abdlrheem,

2019). Regarding the marital status, our results showed that being nonmarried was significantly associated with increased prevalence of EE, but no association with PA and DP. In keeping with our results, nonmarried Egyptian HCWs and Jordanian and Chinese nurses scored high prevalence of EE (Kumar *et al.*, 2013; Qu and Wang, 2015; Osman and Abdlrheem, 2019). In addition to high EE, nonmarried Turkish oncologists significantly scored high DP than married oncologists (Alacacioglu *et al.*, 2009). This result indicates that marriage can act as a social support factor in facing work difficulties. Inconsistently with our findings, other studies showed no significant association between burnout and marital status in Ecuadorian and French HCWs (Malaquin *et al.*, 2017; Ramirez *et al.*, 2017).

Respondents to our questionnaire were HCWs of different specialties such as physicians, nurses, physiotherapist, psychotherapists, and others (Table 1). Our analysis demonstrated a significant

**Table 5 Relation between emotional exhaustion and different parameters (N=143)**

	Emotional exhaustion			$\chi^2$	P
	Low (N=8)	Moderate (N=42)	High (N=93)		
Age (years)					
<30	3 (37.5)	11 (26.2)	48 (51.6)	18.321*	0.002*
30–40	3 (37.5)	24 (57.1)	42 (45.2)		
40–50	2 (25)	7 (16.7)	2 (2.2)		
>50	0	0	1 (1.1)		
Sex					
Male	4 (50)	25 (59.5)	27 (29)	11.623*	0.001*
Female	4 (50)	17 (40.5)	66 (71)		
Marital status					
Not married	4 (50)	13 (31)	59 (63.4)	12.348*	0.001*
Married	4 (50)	29 (69)	34 (36.6)		
Working					
Doctor	6 (75)	26 (61.9)	46 (49.5)	14.562	0.193
Psychologist	1 (12.5)	7 (16.7)	4 (4.3)		
Pharmacist	1 (12.5)	4 (9.5)	19 (20.4)		
Dentist	0	1 (2.4)	1 (1.1)		
Nursing	0	3 (7.1)	15 (16.1)		
Lab. technician	0	1 (2.4)	6 (6.5)		
Physical therapist	0	0	2 (2.2)		
Duration of working in medical specialty					
<5	3 (37.5)	12 (28.6)	48 (51.6)	19.108*	0.019*
5–10	2 (25)	13 (31)	31 (33.3)		
11–15	3 (37.5)	11 (26.2)	11 (11.8)		
16–20	0	5 (11.9)	2 (2.2)		
21–25	0	1 (2.4)	0		
25–30	0	0	1 (1.1)		
Country of work					
Egypt	5 (62.5)	37 (88.1)	80 (86)	6.608	0.108
The Arab world	3 (37.5)	3 (7.1)	6 (6.5)		
Europe	0	2 (4.8)	7 (7.5)		

Data was expressed using  $n$  (%).  $\chi^2$ ,  $\chi^2$  test. P: P value for association between different categories. \*Statistically significant at P value less than or equal to 0.05.

association between low PA and specialty, but it was not significant with DP and EE. Nursing staff comprised the largest number of HCWs who scored low PA followed by physical therapist. Physicians and laboratory technicians came in the fourth place of low PA prevalence. Egyptian nurses in Aswan significantly scored lower means of EE and PA (Osman and Abdlrheem, 2019). Nurses in emergency hospital of Tanta University significantly scored more prevalence of high EE and low PA than physicians. However, physicians were more depersonalized (Abdo *et al.*, 2016). These results contradict the findings from the Spanish study on oncological HCWs, where it revealed a different level of burnout among HCWs with higher level in physicians than nurses (Font *et al.*, 2015). On the contrary, a Norwegian study on ICU nurses and physicians revealed no difference in burnout scores between different specialties (Myhren *et al.*, 2013).

Work in a country other than the homeland may significantly increase psychological burnout. Our

results showed significantly increased prevalence of low PA among those who are working in Europe, followed by those working in Egypt and then in the Arab World. However, there was no significant association with EE and DP. These findings showed some similarities with the findings from the Kuwaiti study on physicians working in primary health care centers in Kuwait, where non-Kuwaiti physicians significantly had higher mean DP score than Kuwaiti physicians, whereas Kuwaiti physicians had a higher mean EE and PA score than non-Kuwaiti physicians (Abdulghafour *et al.*, 2011). However, a study conducted on nurses in Lebanon showed no significant effect of nationality on the all burnout subscales (Sabbah *et al.*, 2012).

#### Limitations

- (1) As a cross-sectional design, this study was not able to provide causality relationship with the variables in spite of providing association.

- (2) The questionnaire relied on self-report, and this has many risks as recall bias and overestimation or underestimation of level of burnout by the respondent.

## Conclusion

The multifacet and heterogeneous entity of burnout contributes to the difficulty in detection and figuring out a single causal relation to one variable. Our findings shed more light on the magnitude of the problem among different sectors of HCWs with different demographic and occupational variables. Sex and profession are not distinctive factors in burnout, whereas age and place of work have proven to be more involved in presence or absence of burnout symptoms.

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## Conflicts of interest

There are no conflicts of interest.

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