

PREVALENCE AND RELATED RISK FACTORS OF "BURNOUT" AMONG PHYSICIANS ATTENDING EGYPTIAN FELLOWSHIP TRAINING PROGRAM

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ABSTRACT

Background: Burn out is a prevalent condition that affects healthcare personnel in different specialties as they are exposed to high levels of stress at work. It includes emotional exhaustion, depersonalization, and low personal accomplishment. Burnout among Physicians has received much attention because of its negative impact on medical personnel, health and performance.

Objective: To measure the prevalence of burn out among physicians enrolled in the Egyptian fellowship training program and identify risk factors for burnout among them.

Subjects and methods: This study is a cross sectional study. Four hundred physicians enrolled in the Egyptian fellowship program were included in this study. A self-administered written questionnaire consisted of three sections was used for data collection: section (1) socio-demographic data, place and load of work, (2) habits, physical activities, smoking and watching TV. Section (3) Maslach Burnout Inventory (MBI).

Results: Male physicians represented 74% of our sample with mean age \pm SD (34.1 \pm 4.4); the prevalence of burnout among participants was 37.5%. Regarding MBI subscales scores, there were significant high level of depersonalization (78.8%) among participants, then emotional exhaustion level (64.5%) and low Personal accomplishment score was recorded in (59.3 %). It was found that working hours extended to more than 40 hours /week, surgical specialties and number of night shifts more than 3 per week were independent risk factors for burnout among the studied group. Also, non-smokers Egyptians physicians and those with less physical activities showed high levels of depersonalization and low personal accomplishment.

Conclusion: the high prevalence of burn out among physicians attending Egyptian fellowship training program requires concentrated efforts at the occupational, socio-psychological, individual, and organizational levels to address executive plans and procedures to combat burn out negative impacts on physician's mental health wellbeing, patients and health care services provision.

Keywords: burnout, job-related stress, occupational, physicians, healthcare workers.

INTRODUCTION

Burnout is defined as a syndrome characterized by loss of enthusiasm for work (emotional exhaustion), feeling of cynicism (depersonalization), and a low personal accomplishment (Balch, Freischlag, & Shanafelt, 2009). Burnout is characterized by tiredness, loss of interest, or frustration that interferes with job performance (Merlo & Rippe, 2021).

Burn-out is a syndrome resulting from chronic exposure to workplace stress that has not been successfully managed. It is characterized by three dimensions: feeling of energy depletion or exhaustion; increased mental distance from one's job, or feeling of negativity or cynicism related to one's job; and reduced professional efficacy ((WHO), 2019).

Physicians' burn out is a psychological condition caused by prolonged exposure to job related stress. It is more common in jobs that need a lot of human connection and interaction. Burnout affects work performance and overall service quality, and it is linked to reported medical errors among healthcare personnel, especially among physicians (Ashkar, Romani, Musharrafieh, & Chaaya, 2010).

Burnout is a common problem that affects healthcare personnel all over the world. Previous studies showed that the prevalence of burnout was about 45.8% among United States physicians, 43% in European countries (Soler et al., 2008; Vinnikov et al., 2019)), and 30% in United Kingdom (Sharma, Sharp, Walker, & Monson, 2008) . Among Arabic countries, burnout

prevalence is about 30% in Yemen, Qatar, and Saudi Arabia (Al-Dubai & Rampal, 2010). Burnout ranges from 31 to 49.6% among Libyan residents, and 50 to 76% among surgical and internal medicine physicians (Ashkar et al., 2010). In Egypt, a study evaluated the prevalence of burnout among health care providers in Aswan University and showed that 51.2% had high emotional exhaustions (EE), 32.9% had high depersonalization (DP), whereas 39% had low personal accomplishment (PA) among participants (Osman & Abdlrheem, 2019).

Different tools are used to measure the Burn out syndrome levels among healthcare personells. One of the most valid and reliable tools is the Maslach Burnout Inventory (MBI); it is the first scientifically developed measure of burnout and is widely used in research studies . Since it was first published in 1981, the MBI has been applied for other purposes including individual diagnosis or organizational metrics. There are different types and versions of Maslach Burnout Inventory (MBI); all of them measure three subscales which included: (1) the Emotional Exhaustion which describes feeling of being emotionally overextended and exhausted by one's work,(2) Depersonalization which describes an unfeeling and impersonal response towards recipients of one's care or service, and (3) Personal Accomplishment which describes feeling of competence and successful achievement in one's work with people (Maslach & Jackson, 1981).

Multiple studies have indicated that age, sex, workplace, and type of hospital are considered important risk factors that can affect the burnout levels (Shanafelt *et al.*, 2010; Soler *et al.*, 2008). Therefore, this study was conducted to measure burnout levels among physicians who were attending fellowship training program during the period of December 2019 to March 2020, when they were coming to the Egyptian fellowship administration office.

SUBJECTS AND METHODS

This cross-sectional study targeted the Egyptian fellowship trainees (physicians) who were coming to the administration office of the Egyptian fellowship to attend the scientific days and lectures during the period from December 2019- March 2020. The consent was obtained from participants before giving them the written questionnaire through explaining the process and the tool that were provided to guide them while answering the questionnaire. From about 2000 physicians registered with the Ministry of health and population (MOHP)-run official program, a convenience sample of four hundred physicians participated from different specialties and governorates.

Inclusion Criteria:

All Egyptian and Arab physicians enrolled in the Egyptian fellowship training program were eligible for inclusion with no regard to their age, gender, or medical specialty.

Exclusion Criteria:

Dentists, pharmacists, nursing staff and ambulatory care staff, and physicians who were not enrolled in the Egyptian fellowship training program were excluded.

Study Tools:

Data was collected using an anonymous, self-administered written questionnaire. The questionnaire included 3 sections: (1) socio-demographic data (e.g., age, occupation, education, (2) Habits, physical activity, and smoking...etc.,(3) Maslach Burn out Inventory questionnaire.

The Arabic version of questionnaire was validated, and it was used in many other studies (Nasrawi, 2017). Maslach burn out inventory (MBI) consists of 22 questions using graded five items Likert-type answers. To determine the risk of burnout, the Maslach Burnout inventory

(MBI) consists of three sub-scales: emotional exhaustion, low personal accomplishment and depersonalization.

For emotional exhaustion (EE), the answers to nine questions have been added together. Regarding for depersonalization/loss of empathy (DP), the answers to five questions have been added together. Regarding personal accomplishment assessment (PA), the answers to eight questions have been added together. The overall burn out score among the studied group was measured and calculated by using the following definition: the participants who have high Emotional Exhaustion (EE) and Depersonalization (DP) scores with low Personal Accomplishment (PA) scores were considered as suffering from burnout. For the prevalence of burnout subscales, the following cutoff points were used(Maslach & Jackson, 1981) (More details about the Maslach Burnout Inventory (MBI) in Supplementary Table S1)

Classification of scores on subscales of the Maslach Burnout Inventory (MBI)

Level	Low	Moderate	High
EE (9 items, 0-54)	0 -18	19 -26	27-54
DP (5items, 0-30)	0- 5	6 -9	10 - 30
PA (8 items,0-48)	39- 48	32 -38	0 -13

Table Cut-off points used (Maslach & Jackson, 1981)

EE= emotional exhaustion DP= depersonalization PA= personal accomplishment

Pilot study:

▪ **Objectives of pilot study:**

- 1) To test the study's questionnaire comprehension by participating physicians from the same geographical and cultural background of the study population.
- 2) We use the 7 graded Likert scale of Maslach burn out inventory.
- 3) To reveal and apply the required modifications on the questionnaire grading and responses categories including the order, wording, format, coding, and ensure that they are all understood correctly and serve the study objectives.

▪ Timing of pilot study: From 1 /12/2019 to 5/12/2019.

▪ Location of pilot study: It took place in administration office of Egyptian fellowship.

▪ Participants of the pilot study:

Twenty-five (25) physicians who meet the inclusion criteria were asked to answer the preliminary questionnaire. The objectives of this pilot study were fully explained to them, and their verbal consent was obtained first.

▪ **Pilot data analysis:**

The obtained data was coded, entered, and analyzed using SPSS program version 11.5. This data was analyzed independently from the main study data and the results were not included in the final results.

We performed a pilot study before start of data collection, we found a very low response rate from physicians and incomplete questionnaire forms. We investigated the reason behind the low response, and participants stated that there is a difficulty differentiating between the 7 scales as the difference is very minor. We re-searched the topic and found (Ozyurt, Hayran, & Sur, 2006). Predictors of burnout and job satisfaction among Turkish physicians which is a Turkish study

conducted using a 5 point scale. Thus, we used the same method after taking the consent of the main supervisor.

Statistical Analysis:

Collected data were computed and analyzed using SPSS v.11.5. Percentages, mean and SD were used as descriptive statistics. Chi-square test and ANOVA test were used. The dependent variable was the burnout score, and the independent factors are the risk factors (predictors) included socio-demographic characteristics of the studied groups. Statistically significant level was considered when p-value was less than 0.05.

RESULTS

Table (1): Socio- demographic characteristics of the studied group (N =400)

<i>VARIABLES</i>		<i>N</i>	<i>VALID %</i>
<i>Gender</i>	Male	309	77.25%
	Female	91	22.75%
<i>Marital status</i>	Married	283	70.75%
	Single	100	25 %
	Divorced	17	4.25%
<i>Nationality</i>	Egyptian	360	90 %
	Other	40	10 %
<i>Educational degree</i>	Bachelor	237	59.25%
	Diploma	23	5.75%
	Master	113	28.25%
	MD	27	6.75%
<i>Specialty</i>	Surgical	255	63.75%
	Non-surgical	145	36.25%
<i>Job title</i>	Resident	293	73.25%
	Specialist	92	23 %
	consultant	15	3.75%
<i>Number of night shifts/ week</i>	One	98	24.5%
	Two	166	41.5%
	≥ three	136	34 %
<i>Working hours/week</i>	≤ 40 hours	154	38.5%
	> 40 hours	246	61.5%
<i>Total years of medical experience</i>	<10	358	89.5%
	≥ 10	42	10.5%
<i>Work setting</i>	Urban	351	87.75%
	Rural	49	12.25 %
<i>Age in years</i>	Mean ± SD	34.1. ± 4.4	
	Range (Min-Max)	(28-50 years)	

As shown in Table (1), the mean \pm SD age was 34.1 ± 4.4 , and nearly three quarters of the participants were males (77.2%). Most of participants were married (70.75%), and about half of them held bachelor degree (59.25 %) and with surgical specialty (63.75%). Regarding the total years of medical experiences, most of participants, (89.5%) have less 10 years (bachelor degree), more than half of participants (61.5%) work more than 40 hours / week and most of participants (90%) are Egyptian.

Table (2): frequency of Physical activity, watching TV, and smoking habits of the studied group (N=400)

<i>VARIABLES</i>		<i>N</i>	<i>%</i>
<i>Physical activity</i>	≤ 30 minutes/day	233	58.25%
	≥ 30 minutes /day	167	41.75%
<i>Watching TV</i>	Not at all	85	21.25%
	Less than 1 hour	190	47.50%
	1 - 5 hours	106	26.50%
	≥ 5 hours	19	4.75%
<i>Smoking Habit</i>	Non-smoker	329	82.25%
	ex-smoker	31	7.75%
	current smoker	40	10%

Table (2) shows that most of the studied groups were non-smokers (82.25%), and about half of them (58.25%) performed physical activity for a duration of less than half an hour per day. It also shows that about half of the studied group (47.50%) watch TV less than one hour per day.

Table (3): Maslach Burnout Inventory (MBI) subscale (Emotional Exhaustion) among the studied group.

		Emotional Exhaustion Subscale			
		Mean	SD	F/t	P value
Gender	Male (N =309)	27.93	8.63	1.76	0.17
	Female (N=91)	28.13	6.61		
Marital status	Married (N=283)	28.06	7.75	1.16	0.32
	Single (N=100)	27.22	9.54		
	Divorce (N=17)	30.36	6.89		
Nationality	Egyptian (N=360)	27.97	8.22	2.42	0.09
	Other (N=40)	25.05	8.10		
Educational degree	Bachelor (N=237)	27.50	8.62	2.06	0.08
	Diploma (N=23)	26.15	9.13		
	Master(N=113)	29.56	7.70		
	MD (N=27)	24.96	6.14		
Specialty	Surgical (N=255)	27.89	7.35	0.17	0.91
	Non-surgical (N=145)	27.73	8.72		
Job title	Resident (N=293)	27.62	7.77	5.07	0.002*
	Specialist (N=92)	26.14	9.90		
	Consultant (N=15)	33.92	6.23		
Number of nights/ week	One time (N=98)	28.82	6.00	5.7	<0.001*
	Two times(N=166)	29.09	7.67		
	≥ three times (N=136)	27.35	9.71		
Working hours/week	≤ 40 hours (N=154)	28.38	7.00	0.69	0.55
	> 40 hours (N=246)	27.57	8.73		
Total years of medical experience	<10 (N=358)	28.60	3.29	0.71	0.54
	≥ 10 (N=42)	27.95	8.29		
Work setting	Urban (N=351)	27.94	6.07	1.94	0.14
	Rural (N=49)	28.23	7.50		
Smoking	Nonsmoker (N=329)	25.46	9.48	12.06	<0.001*
	ex-smoker (N=31)	28.13	7.40		
	current smoker (N=40)	22.61	9.59		
Physical activity	≤30 minutes/day (N=233)	27.63	7.78	0.72	0.48
	≥60 minutes /day (N=167)	27.34	7.59		
Watching TV	Not at all (N=85)	29.01	7.09	5.34	<0.001*
	Less than 1 hour (N=190)	25.80	9.59		
	.1 - < 5 hours (N=106)	29.85	5.87		
	≥ 5 hours (N=19)	31.60	3.95		

Chi-square test; *Significant p-value

Table (3) shows that resident participants showed higher level of emotional exhaustion than specialist (p-value <0.02). Also, higher number of night shifts assigned to physicians (p-value<.001) is associated to higher level of emotional exhaustion, and the non-smoker participants show higher level of emotional exhaustion (p- value < .001). Further, the impact of not watching TV associated with high level of emotional exhaustion (P-value <001).

Table (4): Maslach burn out subscale (Depersonalization) among studied group.

		Depersonalization Subscale			
		Mean	SD	F/t	P value
Gender	Male (N =309)	13.81	4.41	0.73	0.47
	Female (N=91)	13.16	4.86		
Marital status	Married (N=283)	13.98	4.45	2.08	0.11
	Single (N=100)	12.74	4.52		
	Divorce (N=17)	13.55	3.50		
Nationality	Egyptian (N=360)	13.83	4.47	5.81	0.003*
	Other (N=40)	11.41	4.11		
Educational degree	Bachelor (N=237)	13.44	4.73	1.43	0.22
	Diploma (N=23)	15.35	5.01		
	Master(N=113)	13.99	4.42		
	MD (N=27)	12.43	3.79		
Specialty	Surgical (N=255)	14.31	4.25	4.06	0.007*
	Non-surgical (N=145)	12.57	4.50		
Job title	Resident (N=293)	13.78	4.32	1.16	0.32
	Specialist (N=92)	12.96	5.34		
	Consultant (N=15)	14.75	3.33		
Number of nights/ week	One time (N=98)	14.37	4.73	13.7	<0.001*
	Two times(N=166)	14.67	4.18		
	≥ three times (N=136)	13.59	4.24		
Working hours/week	≤ 40 hours (N=154)	14.55	4.59	3.04	0.02*
	> 40 hours (N=246)	13.24	4.39		
Total years of experience	<10 (N=358)	13.71	4.53	2.38	0.06
	≥ 10 (N=42)	15.65	2.52		
Work setting	Urban (N=351)	13.81	4.57	0.83	0.43
	Rural (N=49)	12.78	3.35		
Smoking	Nonsmoker (N=329)	14.05	4.33	6.60	<0.001*
	ex-smoker (N=31)	11.50	5.61		
	current smoker (N=40)	14.43	3.27		
physical activity	≤30 minutes/day (N=233)	14.03	4.81	3.66	0.02*
	≥60 minutes /day (N=167)	14.01	3.97		
watching TV	Not at all (N=85)	14.56	4.40	3.68	0.006*
	Less than 1 hour (N=190)	13.17	4.87		
	.1 - < 5 hours (N=106)	14.47	3.88		
	≥ 5 hours (N=19)	13.60	3.75		

Chi-square test; *Significant p-value

Table (4) shows that higher depersonalization score has been associated with working more night shifts (> 3 times/ week) and non -smoker participants (p-value <0.001).Moreover, participants assigned for more working hours (>40 hours / week)and do less physical activity (<30 minutes / day) show higher score of depersonalization (p-value=0.02). Egyptian participants show higher level of depersonalization (p-value .003), and not watching TV associated with higher level of depersonalization (p- value .006).

Table (5): Maslach burn out subscale (Personal accomplishment) among studied group.

		Personal accomplishment subscale			
		Mean	SD	F/t	P value
Gender	Male (N =309)	25.34	7.13	1.02	0.22
	Female (N=91)	26.77	5.70		
Marital status	Married (N=283)	23.75	8.46	5.62	<0.001*
	Single (N=100)	26.38	6.55		
	Divorce (N=17)	23.26	7.27		
Nationality	Egyptian (N=360)	26.27	4.67	6.67	0.001*
	Other (N=40)	25.67	6.73		
Educational degree	Bachelor (N=237)	27.59	7.49	1.33	0.25
	Diploma (N=23)	25.03	7.20		
	Master(N=113)	24.00	7.95		
	MD (N=27)	26.05	6.59		
Specialty	Surgical (N=255)	27.91	6.53	4.49	0.004*
	Non-surgical (N=145)	26.76	5.51		
Job title	Resident (N=293)	23.96	7.53	4.05	0.007*
	Specialist (N=92)	25.74	6.47		
	Consultant (N=15)	23.50	8.31		
Number of nights/ week	One time (N=98)	28.67	2.77	9.60	<0.001*
	Two times(N=166)	28.36	5.57		
	≥ three times (N=136)	25.97	5.49		
Working hours/week	≤ 40 hours (N=154)	23.45	7.53	14.9	<0.001*
	> 40 hours (N=246)	28.37	4.87		
Total years of experience	<10 (N=358)	23.88	7.04	0.90	0.43
	≥ 10 (N=42)	25.37	6.78		
Work setting	Urban (N=351)	28.18	2.67	3.71	0.02*
	Rural (N=49)	26.08	6.15		
Smoking	Nonsmoker (N=329)	25.32	8.19	7.74	<0.001*
	ex-smoker (N=31)	26.20	6.16		
	current smoker (N=40)	22.32	8.94		
physical activity	≤30 minutes/day (N=233)	25.89	5.60	9.09	<0.001*
	≥60 minutes /day (N=167)	25.34	6.58		
watching TV	Not at all (N=85)	27.41	5.68	4.23	0.002*
	Less than 1 hour (N=190)	25.96	5.61		
	.1 - < 5 hours (N=106)	24.21	7.92		
	≥ 5 hours (N=19)	27.37	5.13		

Chi-square test, *significant P - value.

Table (5) shows that highly significant factors such as participants being married, working more night shifts (>3 times / week), longer working hours (> 40 hours / week), not smoking and doing fewer physical activities (< 30 minutes / day) (p-value <.001) are associated with highly reduced personal accomplishment scores. In addition to that, Egyptian participants suffer more low personal accomplishment (p-value .001) and those with surgical specialties showed lower scores in personal accomplishment subscale (p-value .004). Also, residents suffer more low personal accomplishment (p-value .007), as well as, participants living in urban areas suffer more of low personal accomplishment (p-value .02), while, not watching TV associated with highly reduced personal accomplishment (p-value .002).

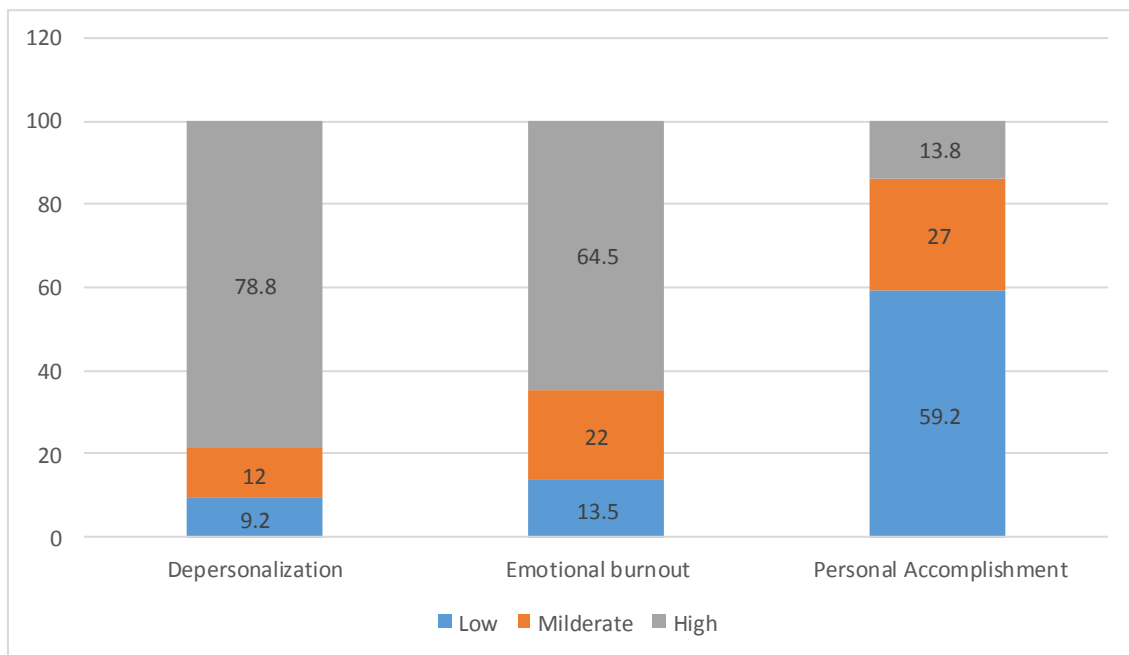


Figure (1): Prevalence of burnout among the studied group (N=400)

Figure (1) shows that 78.8% of participants have a high depersonalization, while 64.5 % have high Emotional exhaustion, and 59.3 % of the participants had low Personal accomplishment level.

Table (6): categories of burn out subscales

Subscale	Emotional exhaustion			Depersonalization			Personal Accomplishment		
	Low	Moderate	high	Low	Moderate	High	Low	Moderate	high
(N)	54	88	258	37	48	315	237	108	55
%	13.5%	22%	64.5%	9.2%	12%	78.8%	59.3%	27%	13.8%
Prevalence of burn out is 37.5%									

Table (6) shows that most of participants suffer from high level of emotional exhaustion (64.5%), high level of depersonalization (78.8%) and low level of personal accomplishment (59.3 %)

DISCUSSION

This study showed that the prevalence of burnout among the studied group was 37.5 %. This result is in agreement with previous study conducted in Qatar that showed that the prevalence of burnout among physicians was 37.8% (Abdulla, Al-Qahtani, & Al-Kuwari, 2014).

In Saudi Arabia, the prevalence was about 50% (Sadat-Ali, Al-Habdan, Al-Dakheel, & Shriyan, 2005) using the same MBI tool; the similarity in working conditions and loads for physicians across the Arabic countries could justify the similar findings. For the MBI burn out subscales, results showed that 78.8% had high depersonalization levels, while 64.5% had high emotional exhaustion scores and 59.3 % had low personal accomplishment.

Similar results were found in studies conducted in Egypt; (Farahat, Hegazy, & Mohamed, 2017) study results show 66.7% of the general practitioners (GPs) had high burnout while only 26.7% of specialists had high burnout. Emotional exhaustion was higher in general practitioners (GPs) (80.7%), than family physicians (75%) and specialist (46.7%). High depersonalization was noted in GPs with value of 89.5% compared to 50% and 40% in family physician and specialist respectively. Additionally, nearly two thirds of the specialists had high personal accomplishment in comparison to 40.3% and 22% in general practitioners and family physicians. Furthermore, burnout was more prevalent with those under 30 years old and with less than 5 years of experience.

One study, conducted in the emergency hospital of University of Tanta, shows that 39.7% of respondents scored high on emotional exhaustion, while 45.6% had high levels of depersonalization, and the majority (99.2%) had high levels of reduced personal accomplishment (Abdo, El-Sallamy, El-Sherbiny, & Kabbash, 2016).

Another study investigated the burn out among frontline physicians in Egypt during COVID-19 pandemic, and results showed prevalence of 72.8% among study subjects and were classified as having a high burnout level, high emotional exhaustion 62.2% and depersonalization 62.4% and 43.5 % had low personal achievement levels (Abd-Ellatif, Anwar, AlJifri, & El Dalatony, 2021).

In Saudi Arabia, a study among primary care doctors in Riyadh Military hospital showed that 53.5% of respondents scored high for emotional exhaustion, 38.9% for depersonalization and 28.5% for personal accomplishment with 2.78 % scoring high burnout in all three dimensions (Selaihem, 2013).

In Jeddah, a study showed that the prevalence of burn out is 25.2% of the physicians. Emotional exhaustion was noted in 69.5%. A positive correlation was noted between the number of patients per day and burnout (Bawakid *et al.*, 2017)

In this study, these high levels of emotional exhaustion and depersonalization could be explained by the workload, working more than 40 hours per week, working more three night shifts per week, bearing additional burden in different departments to meet shortage of physicians and extra load in performing administrative work. The complexity of the national health system could be another contributing factor to the burn out phenomenon where different categories of hospitals with different work systems (teaching hospitals, Amanat El-Marakez hospitals, general hospitals, and central hospitals) with logistical challenges, and limited resources (human, financial, Medical, technical). In addition to that, ethical commitment during providing healthcare service exerts more pressure on physicians. These factors and stressors make physicians at high risk of having mental and emotional stress, and increase the probability of the development of burnout among them.

However, lower prevalence (12.6%) of burn out was reported in a study conducted among general practitioners in Qatar due to higher income and provision of supplies (Abdulla *et al.*, 2014). One study, in Kuwait, found lower score of emotional exhaustion (29%), lower score of depersonalization (22.9%) and 26.4% in personal accomplishment. Most of them were females ,and they explained these results as they have got higher income for physicians (Abdulghafour, Bo-hamra, Al-Randi, Kamel, & El-Shazly, 2011).

Regarding risk factors for burn out in this study, first, the emotional exhaustion was more recorded in resident participants than specialists (p-value <0.02). Also, higher number of night shifts assigned to physicians (p-value < .001) was linked to higher the level of emotional

exhaustion, and the non-smoker participants show higher level of emotional exhaustion (p- value < .001). Further, the impact of not watching TV associated with high level of emotional exhaustion (P-value <001). The second risk factor is higher depersonalization score which has been associated with working more night shifts (> 3 times/ week) and not smoking (p-value <0.001). Moreover, participants assigned for more working hours (>40 hours / week) and do less physical activity (<30 minutes / day) show higher score of depersonalization (p-value = 0.02). Egyptian participants show higher level of depersonalization (p-value .003), and not watching TV associated with higher level of depersonalization (p- value .006).

The third risk factor for burn out is personal accomplishment where highly significant factors including participants being married, working more night shifts (>3 times / week), more number of working hours (> 40 hours /week), non- smokers and doing less physical activities (< 30 minutes / day) (p-value <.001) suffered from highly reduced personal accomplishment scores. In addition to that, Egyptian participants suffer more low personal accomplishment (p-value .001), and those with surgical specialties showed lower scores in personal accomplishment subscale (p-value .004). Also, residents suffer from more low personal accomplishment (p- value .007). Furthermore, participants living in urban areas suffer from burn out (p-value .02), and not watching TV associated with highly reduced personal accomplishment (p-value .002).

Regarding risk factors for burnout, the study results show that married participants, working for more than 3-night shifts/week and working hours more than 40 hours/week with surgical specialties are risk factors for burn out. Egyptian participants were independent risk factors for burnout. and they explained this finding as that married physicians have added familial responsibility, financial overloads and social care This finding is in accordance with one study that the estimated levels of burnout among emergency physicians in the United States ranged

from 25–60% and more than 90% among Canadian emergency physicians as these rates considered high when compared with other non-surgical specialties (Cydulka & Korte, 2008).

Furthermore, the study results showed that married participants have higher low personal accomplishment scores than single ones. In fact, these results were similar to findings from previous study that reported that being married and having children associated with more responsibilities, and this leads to high emotional exhaustion and depersonalization scores and higher overall burnout score.

As shown in table (6), burn out rates are higher in married physicians. On the other hand, (Zhang et al., 2021) study in Iran reported that burnout lower among married physicians than among unmarried physicians, and they explained this finding as that married people received more social and emotional support for their partners and society than the unmarried individuals.

Table (5) shows that male participants suffered from lower personal accomplishment scores resulting in higher burn out rate among males (p -value $<.001$). In addition to that, married participants and those with surgical specialties showed lower scores in personal accomplishment subscale (p -value <0.001). Working >3 -night shifts per week and longer working hours > 40 hours per week were associated with highly reduced personal accomplishment (p -value $<.001$).

Regarding risk factors for burnout, the study results shown that most of the studied group are young (mean age of studied group is 34 years) with bachelor degree and enrolled in Egyptian fellowship training program for success and seeking professional career upgrade, and this costs them efforts, time, money and severe stress. Therefore, they suffer from high level of emotional exhaustion and high depersonalization, and low personal accomplishment due to interactions with patients and work overload. In fact, this is consistent with previous research in Palestine showing that burnout is more prevalent in younger physicians (Ayed et al., 2015). A possible

explanation is that younger physicians are less experienced and more cognitively overwhelmed with the workload.

Surgical specialties are associated with higher depersonalization score and low personal accomplishment score as the junior surgeon's performance associated with anxiety and fear of complications. Thus, they may feel pressured to prove themselves to their colleagues, other staff and their family unlike senior staff who are more established in their personal and professional lives.

Moreover, the work burden and excessive workload were significant risk factors associated with high burn out scores as prolonged working hours per week, especially night shifts, affected the physical and emotional status of the physicians and are associated with an increase in the job stress and burnout rates. These results were similar to other studies that showed that physicians' work burden is strongly associated with job dissatisfaction, stress and burnout (Cui & Wang, 2016; Huang et al., 2020)

Regarding the physician's lifestyle and habits, results showed that being non-smoker, performing less physical activity (< 30 minutes / day) and not watching TV are associated with a higher level of reduced personal accomplishment and depersonalization. These results were explained by the fact that these participants were stressed, overloaded by work, familial, self-responsibilities, so the studied group had no time for entertainment and caring for themselves. These results were consistent with a previous study that revealed a significant negative correlation between unhealthy lifestyle and burnout score. With regard to the association of burnout with smoking, several authors (Petrelli, Scuri, Tanzi, Nguyen, & Grappasonni, 2018; Xia et al., 2020) considered smoking as a predictor of feelings of stress and

exhaustion related to work problems, while another study showed that smoking did not predict job associated burnout among doctors and nurses (Vinnikov et al., 2019).

Burnout among physicians attending fellowship training program is a global phenomenon. Burnout among physicians leads to poor quality of care delivered to patients, increased medical errors, and career shift. Enhancing resilience and time break for entertainment and rest at work is crucial. Also, creating a positive work environment helps physicians achieve work–life balance and provide job security. Further, providing a family-friendly work environment may help prevent burnout among physicians.

CONCLUSION

Burnout is a prevalent and serious problem that affects physicians to different degrees. In order to combat negative stressors and reducing work related burnout in the physicians' work environment, enhancement activities should be taken into account at the individual and organizational levels. These interventions will help in preventing and reducing harmful stressors in the working environment.

This study concluded that the prevalence of burn out among physicians attending the fellowship training program is 37.5%. 64.5% of participants suffered from high levels Emotional Exhaustion, while 78.8% suffered from high levels of Depersonalization with 59.3% suffering from low personal accomplishment. The contributing risk factors are: work overload, number of night shifts, surgical specialties, male gender, Egyptian nationality, and residents. Additionally, non- smokers, not watching TV and doing fewer physical activities are considered risk factors to burn out phenomenon.

Burnout among physicians attending fellowship training program is a global phenomenon. Burnout among physicians leads to poor quality of care delivered to patients, increased medical errors, and career shift and quitting. In addition to that, burn out results in lower quality health outcome. Enhancing resilience and free time for entertainment and rest at work is crucial. Also, creating a positive work environment helps physicians achieve work–life balance and provide job security, while providing a family-friendly work environment may help prevent burnout among physicians.

RECOMMENDATIONS

Main recommendations include improving the work environment and eliminating any factor that leads to job related stress such as assigning a greater number of physicians, distributing the workload fairly and providing close supervision for junior physicians. With clear organizational structure and duties and providing appropriate entertainment for physicians that suit their working hours, this can alleviate the burn out. Also, to reduce job stress and burn out, physicians should be enabled to do sports and activities, and be provided with facilities to take care of them and their families. On top of all of the previously mentioned recommendations, improving the financial situation can play a crucial role in alleviating burn out among physicians. Further, other recommendations include scientific supervision, determining who make decision in health care provision and protecting them against the dangers of the profession. Motivating physicians with clear career paths and chances for promotion with secured work place during working hours are important factors for reducing burnout, and the most important one is security of income.

Further, providing medical insurance for physicians and their families can reduce the burn out phenomenon among physicians while including awareness and entertainment sessions to reduce stress and avoid burn out. Developing an educational intervention program for health care providers about coping strategies to overcome burnout and job challenges is needed. We recommend further follow-up studies on the intensity and determinants of burnout as well as job satisfaction, and what is realistically required to manage or prevent burnout in different physicians' groups.

Although the root causes of physician's burnout are numerous, the recommended improvements will likely require intensive and long-term systemic and cultural change. Organizations should survey medical staff to evaluate physician's burnout and solicit ideas for workplace improvements leading to better work-life balance and reduce job related stress.

ACKNOWLEDGMENT

The authors wanted to express their deep gratitude to the respondents who kindly gave their time and consented to participate in this study.

ETHICAL CONSENT

An informed consent was obtained from physicians before starting interviews. Participating physicians were informed about background and procedure during the interview, and that there are no physical, social, psychological or financial risks to them. All physicians participated voluntarily, and had withdrawal right at any time without any consequences. The questionnaires were anonymous, and the confidentiality and privacy of participants' data were ensured throughout this study.

CONFLICT OF INTEREST

The authors announce that they do not have competing interests

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انتشار وعوامل الخطورة " متلازمة الانطفاء المهني "

بين أطباء برنامج الزمالة المصرية

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المستخلص

الخلفية: ينتشر "الانطفاء المهني" بين الاطباء و يؤثر على العاملين في تقديم الرعاية الصحية في التخصصات المختلفة حيث ان الاطباء يتعرضون لمستويات عالية من التوتر اثناء العمل. يتضمن الانطفاء المهني الإرهاق العاطفي، وتبدد الشخصية، وانخفاض الإنجاز الشخصي. يستحوذ الانطفاء المهني لدى الاطباء على اهتمام كبير بسبب تأثيره السلبي على صحة العاملين في تقديم الخدمة الصحية وأدائهم.

الهدف: قياس مدى انتشار "الانطفاء المهني" بين الأطباء الملتحقين ببرنامج الزمالة المصرية التدريبي وتحديد عوامل الخطر بينهم .

طريقة البحث: هذه دراسة مقطعية تشتمل على أربعمئة طبيب من الاطباء الملتحقين ببرنامج الزمالة لمصرية ممن ينطبق عليهم شروط البحث . تم اعطاء استبياننا مكتوبا مكونا من ٣ أقسام لجمع البيانات: (١) البيانات الاجتماعية والديموغرافية، ومكان العمل وعبء العمل، (٢) العادات والأنشطة البدنية والتدخين ومشاهدة التلفزيون، القسم (٣) قائمة ماسلاش لقياس الانطفاء المهني Maslach Burnout Inventory (MBI) والتي تتكون من ٣ مقاييس (ا) الانهاك العاطفي (ب) تبدد الشخصية (ج) الانجاز الشخصي .

النتائج: يمثل الأطباء الذكور ٧٧٪ من العينة بمتوسط عمر $SD \pm (٣٤,١ \pm ٤,٤)$ ؛ بلغ معدل انتشار الانطفاء المهني بين اطباء الزمالة المصرية المشاركين بالدراسة (٣٧,٥٪) بالنسبة لنتائج مقاييس قائمة ماسلاش الفرعية (MBI) فنجد ان (٧٨,٨٪) من اطباء الدراسة عانوا من تبدد الشخصية بينما عانى (٦٤,٥٪) من الإرهاق العاطفي، في حين تم تسجيل انخفاض في معدل الإنجاز الشخصي في (٥٩,٣٪) من المشاركين. اما بالنسبة لعوامل الخطورة لانتشار الانطفاء المهني بين اطباء الزمالة المصرية فهي كالاتي: امتداد ساعات العمل إلى أكثر من ٤٠ ساعة في الأسبوع، التخصصات الجراحية وعدد النوبتجات الليلية التي تزيد عن ٣ مرات في الأسبوع . ينتشر تبدد الشخصية وانخفاض الانجاز الشخصي اكثر بين الاطباء

المصريين وبين الاطباء المتزوجين والذين لا يدخنون السجائر ويمارسون أنشطة رياضية بمعدل اقل من نصف ساعة في اليوم ويشاهدون التلفزيون اقل من ساعة باليوم .

الخلاصة: تسلط نتائج الدراسة الضوء على انتشار الانطفاء المهني بين اطباء برنامج الزمالة المصرية وكذلك تلقى الضوء على الجهود المطلوبة على مستوى الافراد والمستوى المؤسسي لعمل الخطط والإجراءات التنفيذية لمكافحة الانطفاء المهني لتقليل الاثار السلبية له على صحة الاطباء العقلية والنفسية، وكذلك الاثار السلبية على تقديم خدمات الرعاية الصحية للمرضى.
الكلمات الرئيسية: الانطفاء المهني، الأطباء، العاملون في مجال الرعاية الصحية، الاجهاد المرتبط بالوظيفة.