

Assessment Of Burnout And Job Satisfaction Among Healthcare Workers: A Cross Sectional Study

By

Doaa Saied Omer¹, Inas M. Moaz¹, Esam S. Elshimi², Wesam S. Morad¹.

¹ Epidemiology and Preventive Medicine Department, National Liver Institute, Menoufia University, Egypt.

² Hepatology and Gastroenterology Department, National Liver Institute, Menoufia University, Egypt.

Email: doaasomer94@gmail.com

Telephone: 01005499454

ABSTRACT:

Background: Burnout and job satisfaction of healthcare workers (HCWs) greatly affect the quality of health services, so it's important to study them. Although burnout is a widespread phenomenon among HCWs, there are no studies about its prevalence in the National Liver Institute (NLI).

Aim of the study: to assess the prevalence of burnout and job satisfaction among HCWs and identify some of their determinants at the NLI - Menoufia University- Egypt.

Methods: this is a cross sectional study that was conducted on 200 healthcare workers, including 104 physicians, 76 nurses, and 20 lab technicians working at NLI, Menoufia University and selected by sample random method. This study conducted from 1st September 2021 to 30th September 2022. The questionnaire included demographic data, an assessment of burnout using the Maslach burnout inventory (MBI), and job satisfaction using the short form of Minnesota satisfaction questionnaire (MSQ). Descriptive and analytic statistics were done.

Results: Considerable levels of burnout were detected. The levels of burnout subscales were as follows: 55.5% showed high emotional exhaustion (EE), 48.5% showed high depersonalization (DP), and only 8.5% showed high personal accomplishment (PA). Regarding job satisfaction, 48.5% perceived moderate general satisfaction. While only 26.5% perceive high general satisfaction. 42% perceived moderate extrinsic satisfaction. 44% perceived moderate intrinsic satisfaction

Conclusion: A significant degree of burnout was found among healthcare workers (especially nurses, followed by technicians and physicians). Physicians and technicians were more satisfied with their jobs than nurses.

Keywords: Burnout, Healthcare providers, Job satisfaction.

Introduction:

Mental wellbeing of HCWs is an essential element in health service delivery. It might have an impact on how well they perform at work, quality of the provided service, and how safe patients are. Burnout and job satisfaction are important components of the quality of health services provided (Wada K et al., 2008). Burnout syndrome is the most prevalent mental health issue, primarily impacting doctors and nurses (Iacovides A et al., 2003). Healthcare institutions represent a very dangerous and high risk work environment.

The term "burnout" refers to a prolonged reaction to ongoing emotional and interpersonal pressures, characterized by EE, DP, and lack of PA (Maslach C et al., 2001). EE is a state in which a person feels overextended emotionally by their work, resulting in a loss of energy and making them feel generally weak. DP is the term used to describe the development of impersonal, heartless, and unfeeling attitudes toward patients and loss of idealism at work. The feeling of reduced PA refers to a feeling of lack of confidence in one's abilities and personal achievement (Maslach C et al., 2001). Numerous studies have revealed an increase in burnout rates. In Middle Eastern countries, a study revealed that burnout is common among HCWs, with prevalence estimates typically ranging between 40% and 60%. Burnout among HCWs in the Middle East is associated with their work situations, exposure to terror and violence, emotional distress, and low social support (Chemali Z et al., 2019). Experts in the USA have recently considered physician burnout a public health crisis, with prevalence estimates indicating that up to 78% of physicians at least sometimes have feelings of burnout (Meredith et al., 2022). In Egypt, one study in the emergency hospital of the University of Tanta reported that about one-quarter of nurses and physicians suffer from burnout syndrome (Abdo, S et al., 2016). In another study at Suez Canal University Hospital in 2013, the residence physicians were extremely burned out, with a high EE percentage of 81% and a high DP of 64%. However, low PA represented about 17% (Fahim et al., 2013). Another study at Aswan University showed that there were considerable levels of burnout among healthcare providers at Aswan University Hospital, and nurses were more satisfied with their jobs than physicians (Osman & Shaimaa 2019).

Factors help the development of burnout, especially in HCWs, may include moral distress, emotional demands that create the impression of excessive workload, and stressors associated with the

physical and psychological environment like time pressure, excess workload, unfairness, the presence of interpersonal conflicts, doubt about patient treatment decisions, and exposure to patients' suffering and death (Portoghese et al., 2014). Burnout has negative effects on the standard of healthcare services delivered. It results in less job satisfaction, less productivity, more mistakes, worse patient care, and a greater turnover rate (Rotenstein et al., 2018).

According to the evidence that is currently available, job satisfaction has been linked to the prevalence of burnout symptoms in a work environment (Myhren et al., 2013). Job satisfaction, which affects the burnout syndrome and is evaluated alongside burnout, is defined as the emotional satisfaction or positive feelings that the worker perceives as a result of the evaluation of his or her work. Job satisfaction is a protective factor against burnout by increasing employee excitement, which has a good effect on the quality and success of health organizations (Halcomb & Bird 2020). Job satisfaction includes two factors: intrinsic factors (responsibility, accomplishments, recognition, etc.) and extrinsic factors (salary, safety, physical environment, etc.) (Lu et al., 2019).

There is a gap in burnout and job satisfaction knowledge, and no studies have been done to address it before among NLI healthcare workers at Menoufia University. This study aimed to assess burnout levels and job satisfaction among NLI Menoufia University healthcare workers.

Ethical consideration:

1. A verbal and written informed consent was obtained from all participants (HCWs) before participation in the study.
2. The objectives of the study, the expected benefits and types of information to be obtained were explained to them.
3. An approval by the local ethical committee at the National Liver Institute (NLI), Menoufia University, Egypt, name: NLIIRB00003413FWA0000227 was obtained before the study.
4. The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.
5. All the data and results of the study are confidential and the participants had right to keep it. At the start of the study, an explanation of the study was provided, to ensure the potential participant had adequate information to provide informed consent.
6. The participant has the right to withdraw from the study questionnaire at any time.
7. Funding: Not applicable.

Sample size equation: a sample size of 196 healthcare workers would be needed to detect an expected prevalence of burnout 25%, with a precision of 0.05, considering a total population of 600 healthcare workers at National Liver Institute (Stodolska et al., 2023). Sample size is calculated using the formula: $n = (Z^2 \times P \times (1 - P)) / e^2$ Where:

- Z = value from standard normal distribution corresponding to desired confidence level (Z=1.96 for 95% CI)

- P is expected true proportion

- e is desired precision (half desired CI width).

Inclusion criteria: The study included all registered healthcare professionals who agree to participate in the study, who present on the days that the data is collected and who don't have any psychological problems.

Exclusion criteria: HCWs who refuse to provide their consent or who are not registered not be allowed to participate in the study. Furthermore, excluded are part-time employees and who had psychological problems.

Study Design: this is a cross-sectional hospital based study. The study population consisted of 200 healthcare workers: 104 physicians, 76 nurses, and 20 lab technicians selected by simple random method.

Study procedure: Pilot study: It was done on 15 participants using the constructed questionnaire after validation to evaluate the questionnaire for clarity, time to fill the questionnaire, applicability, and if the questionnaire needs any modification. These fifteen participants were not included in the full-scale study.

Data was collected using a validated questionnaire tool, which consisted of three main sections: 1. Personal and job characteristics, including sociodemographic characteristics such as age, sex, residence, marital status, teaching position at NLI, years of work, average hours worked daily, and average shifts per week. 2. Maslach burnout inventory (MBI): assessment of perceived burnout, composed of 22 items divided into three subscales: EE, which includes 9 items, DP, which includes 5

items, and lack of PA, which includes 8 items. Each item has a 7 points rating scale ranging from 0 to 6 points (0 = never, 1 = few times a year or less, 2 = monthly or less, 3 = few times a month or less, 4 = every week, 5 = few times a week, to 6 = every day). In each subscale, Answers are classified as having a low, moderate, or high level of burnout. A high level of burnout was considered if score of EE was ≥ 27 , PA was ≤ 21 , and DP was ≥ 13 ; then moderate if EE was 17-26, PA was 38-22, and DP was 7-12; and low if EE was ≤ 16 , PA was ≥ 39 , and DP was ≤ 6 (Maslach et al., 1986). The English version of the scale was translated into Arabic by authors, then revised and validated by 2 professors, 1 assistant professor, and 1 lecturer. Cronbach's α value was 0.829, 0.887, 0.768, and 0.891 for the main MBI scale, emotional exhaustion subscale, depersonalization subscale, and diminished personal accomplishment subscale, respectively. 3. Job satisfaction was assessed using the Minnesota satisfaction questionnaire short Arabic version which is a 5-point Likert scale of 20 items that show the internal and external satisfaction factors experienced by individuals regarding their job. The lowest satisfaction score is 20, while 100 is the highest. The scoring of each question was as follows: 1 = very dissatisfied, 2 = dissatisfied, 3 = neither/ I can't decide, 4 = satisfied, and 5 = very satisfied. The Minnesota Job Satisfaction Scale has three sub-dimensions, namely general satisfaction, internal satisfaction, and external satisfaction (Weiss et al., 2018) (Weiss et al., 1967).

Data analysis: All data were entered into an Excel file and then managed through Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistical analysis was used. Quantitative data were expressed as mean and standard deviation or median and IQR, while frequencies and percentages summarized qualitative data. Some tests were used such as chi square test, Mann Whitney, Kruskal Wallis test, and spearman correlation and for prediction, multivariable linear regression models (enter method) were conducted.

Results:**Table 1: Personal and job characteristics of the studied HCWs in NLI Menoufia University.**

Personal and Job Characteristics	Health Care Providers (n=200) No. (%)
Age (Mean± SD) Median (IQR) Min-max	 (30.3 ± 6.3) Y 30 (27- 31) Y 21-55 Y
Type of job Physician Nurse Lab technician	 104 (52%) 76 (38%) 20 (10%)
Gender Male Female	 55 (27.5%) 145 (72.5%)
Marital status Single Married Widow Divorced / separated	 55 (27.5%) 138 (69%) 2 (1%) 5 (2.5)
Residence Menoufia governorate residents From outside Menoufia	 188 (94%) 12 (6%)
Smoking status Yes No	 18 (9%) 182 (91%)
Duration of work in years (Mean± SD) Median (IQR) Min-max	 (6.96 ± 6.5) Y 5 (3- 8) Y 1.1-32 Y
Number of working hours / day (Mean± SD) Median (IQR) Min-max	 (10.6 ± 6.4) Hour 10 (6- 12) Hour 4 – 36 Hour
Number of shift per week (Mean± SD) Median (IQR) Min-max	 (2.76 ± 1.41) Shift 3 (2- 4) Shift 0 – 7 Shift

Table 1 shows: The mean age of the studied subjects was 30.3 ± 6.3 years. Males constituted 27.5% of them. 69% of the studied participants are married, while single participants represented 27.5%. 94% of healthcare providers were living in Menoufia Governorate. About 90% of the studied sample are nonsmokers. The mean work duration is 6.96 ± 6.5 years. the average number of working hours per day was 10.6 ± 6.4 . With a 2.76 ± 1.41 average mean of the number of shifts per week.

Figure 1: Levels of burnout among health care providers in NLI Menoufia University.

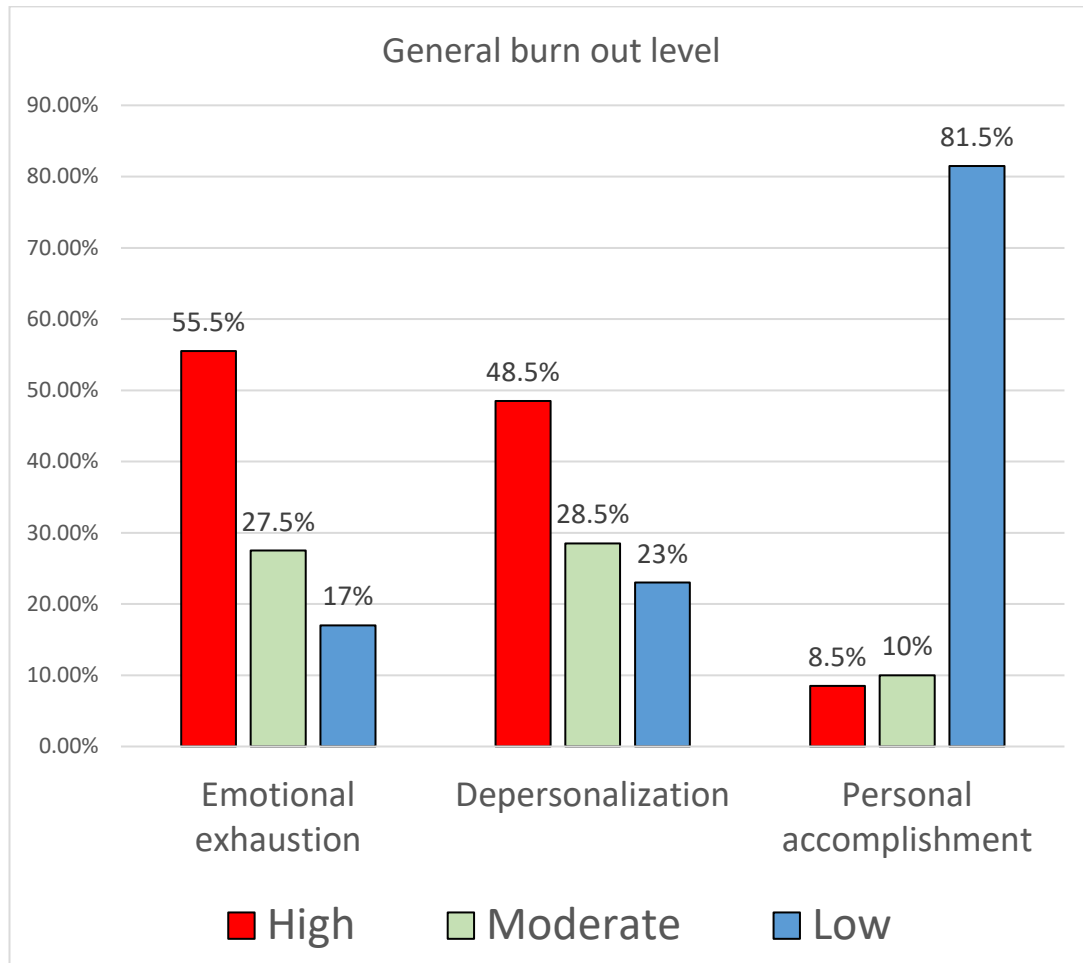


Figure1: On studying burnout, 55.5% of healthcare providers perceived high emotional exhaustion. 48.5% of healthcare providers perceived high depersonalization levels. Only 8.5% of healthcare providers perceived high personal accomplishment.

Table 2: Burnout and job satisfaction among the studied HCWs in NLI Menoufia University:

Studied Variable	Total (n=200)	Physician (n=104)	Nurses (n=76)	Lab technician (n=20)	Kruskal-Wallis Test (P value)
Burn out subscales					
Emotional exhaustion					
Mean± SD	31± 12	29.6± 12.3	32.9± 11.4	31.3± 12.8	0.139
Median-IQR	31 – (22-42)	27 – 21	33.5 -16.5	30 - 20.5	
Min-max	5 - 52	5 – 51	6 -52	7 – 51	
Depersonalization					0.001*
Mean± SD	11.2± 7.3	9.9± 6.3	13.9± 8.1	7.8± 6.4	Post hoc test
Median-IQR	11 – (6-16)	9 – 9	13 – 8	8 – 12.8	P1= 0.003*
Min-max	0 - 30	0 – 27	0 - 30	0 - 18	P2= 0.778 P3= 0.007*
Personal accomplishment					
Mean± SD	26.4± 9.2	24.9± 7.8	27.9± 10.2	27.7± 11.2	0.317
Median-IQR	26 – (19-32)	25 – 12	27.5 – 9	26 – 19	
Min-max	4 – 48	4 – 44	9 – 48	12 – 48	
Job satisfaction subscale					
General satisfaction					
Mean± SD	45.7± 14.4	46.7± 14.5	42.7± 12.6	52.4± 17.9	0.088
Median-IQR	43.5 – 19.8	45 - 20	40 – 19.3	51 – 26.8	
Min-max	20 – 97	21 - 82	20 – 69	33 – 79	
Extrinsic satisfaction					
Mean± SD	12.7 ± 4.9	13.3 ± 4.6	11.9 ± 4.9	12.7 ± 6.2	0.063
Median-IQR	12 – (9-16)	12 – 6.8	10 - 8	11 – 8.8	
Min-max	6 - 27	6 - 23	6 – 25	6 – 27	
intrinsic satisfaction					0.041*
Mean± SD	29.4 ± 9.3	29.7 ± 9.6	27.4 ± 7.5	35.3 ± 11.1	Post hoc test
Median-IQR	28– (24-35)	28 – 13.8	27.5 – 8.8	34.5 – 17.8	P1=1
Min-max	12- 60	13 - 54	12 - 43	21 – 60	P2=0.119 P3= 0.034*

*significant difference P1 (physician-nurse). P2 (physician- lab technician). P3 (nurse- lab technician).

Table 2 shows: Perceived emotional exhaustion and personal accomplishment ranking were slightly higher among nurses, followed by lab technicians, and lastly, the physicians. However, this difference was statistically non-significant (p-value >0.05). But the depersonalization score was higher among nurses, followed by physicians, then lab technicians. This difference was significant between nurses and physicians, as well as between nurses and lab technicians. Regarding satisfaction, the general satisfaction score was higher among lab technicians, followed by physicians and nurses. However, this difference was statistically non-significant (p-value >0.05). Extrinsic satisfaction was slightly higher among physicians than lab technicians and nurses. However, this difference was not significant. Intrinsic satisfaction was higher among lab technicians, followed by physicians and nurses. This difference was significant between nurses and lab technicians.

Table 3: predictors of Burnout among the studied health care providers in NLI Menoufia University.

Variable	Emotional exhaustion		depersonalization	
	R square =0.421 F =17.3 B< 0.0001 (HS)		R square =0.349 F =12.8 B< 0.0001 (HS)	
	B	P value	B	P value
Age	-0.720	0.001*	0.035	0.878
Gender (males)	-0.021	0.723	0.230	0.000*
Marital status (single, divorced or separated)	0.043	0.464	0.111	0.074
Type of Job (nurse, lab technician)	0.217	0.005*	0.082	0.364
Type of department (clinical)	0.222	0.002*	0.209	0.005*
Duration of work in years	0.664	0.002*	0.028	0.902
Number of working hours / day	0.247	0.000*	-0.033	0.625
Minnesota satisfaction scale	-0.432	0.000*	-0.391	0.000*

Adjusted linear regression models.

Reference groups females, married, physician, and academic department.

Table 3: Regarding predictors of burnout subscales (EE, DP), we conducted linear regression. Decreases in age, nurses and lab technicians, from the clinical department, an increase in years of work, an increase in number of working hours per day, and a decrease in job satisfaction level are all significantly associated with increase EE. Being male, from the clinical department, and decreasing job satisfaction level are all predictors that increase DP.

Figure 2: levels of job satisfaction among health care providers in NLI Menoufia University.

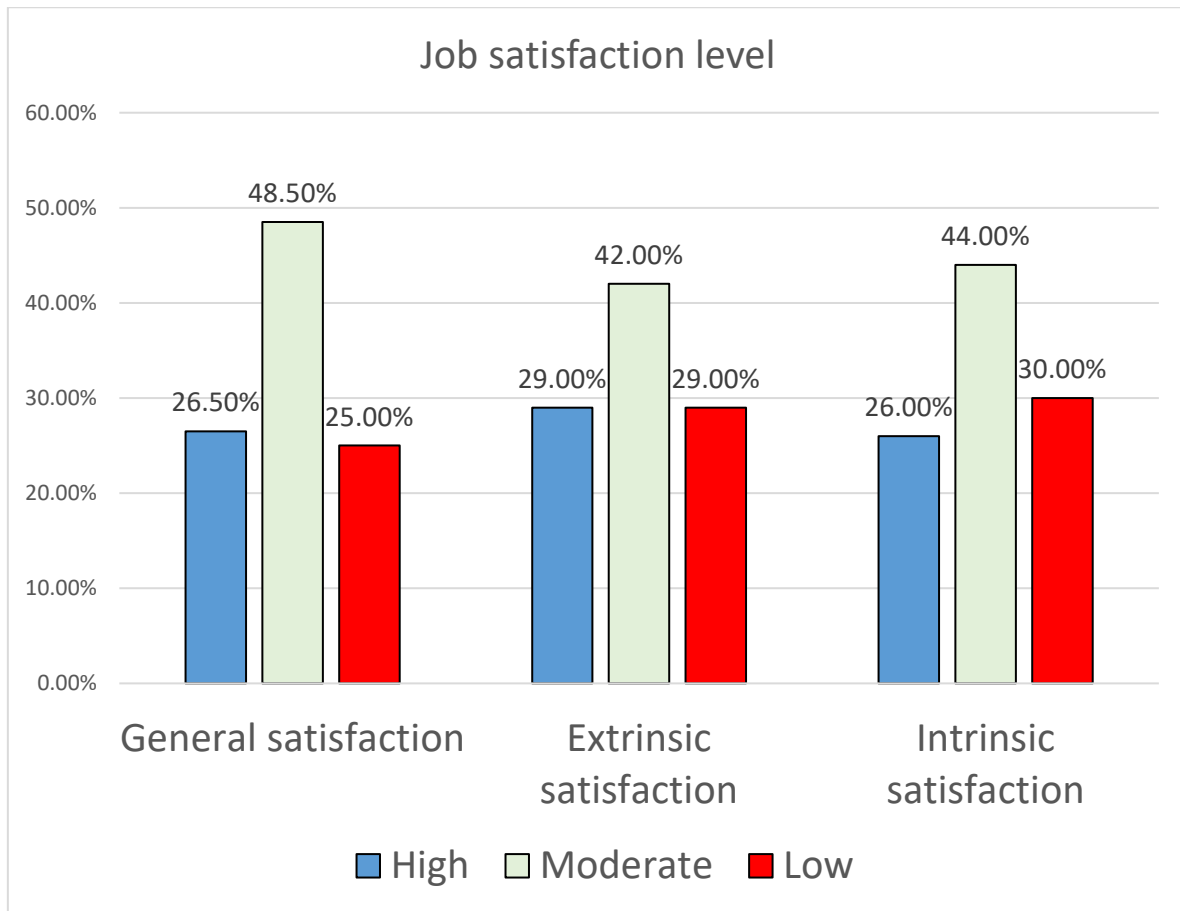


Figure 2: As regards job satisfaction, about half of healthcare providers at NLI (48.5%) perceived moderate general satisfaction. While (26.5%, 42%, and 44%) perceived high general satisfaction, moderate extrinsic satisfaction, and moderate intrinsic satisfaction, respectively.

Table 4: predictors of job satisfaction among the studied HCWs in NLI Menoufia University.

Variable	General satisfaction		Intrinsic satisfaction	
	R square =0.423 F =15.5 B< 0.0001 (HS)		R square =0.319 F =12.65 B< 0.0001 (HS)	
	B	P value	B	P value
Age	-0.082	0.147	-0.147	0.17
Gender (males)	0.266	0.000*	0.280	0.000*
Marital status (single, divorced/ separated)	0.56	0.333	0.86	0.144
Type of Job (physician, lab technician)	0.189	0.003*	0.236	0.000*
Type of department (academic)	0.002	0.982	0.016	0.825
Number of working hours / day	0.080	0.224	0.127	0.05*
Emotional exhaustion	-0.433	0.000*	-0.354	0.000*
Depersonalization	-0.238	0.002*	-0.281	0.000*
Personal accomplishment	0.305	0.000*	0.307	0.000*

Adjusted linear regression models.

Reference groups females, married, nurses, and clinical department.

Table 4 shows: Male HCWs, lab technicians, and physicians who are currently unmarried, have low EE, low DP, and high PA are predictors of general and intrinsic satisfaction, an increase in Number of working hours per day also a predictor of intrinsic satisfaction increase.

Discussion: Burnout is an emotional depletion and poor adaptation causing detachment that develops in response to stress at work. In the later part of the last century, it was recognized that HCWs, including physicians, nurses, technicians, are as vulnerable to burnout as any other workers. The reported incidence among physicians was in the range of 50% to 76% (Sadat-Ali et al., 2005).

This study showed considerable levels of burnout among the total studied population (physicians, nurses, and technicians). Highly emotionally exhausted represented 55.5% among the studied HCWs; among physician were (46.2%), while among nurses were (67%) and among technicians were (60%). A high level of depersonalization was detected in nearly 50% of the whole studied group and was higher among nurses (61.8%) than technicians (45%) and physicians (39.4%). Those who perceived low personal accomplishment were 81.5% overall; physicians were (87.5%), nurses were (77.6%), and technicians were (65%). This may be due to the overburdened healthcare system in Egypt, understaffing, especially among nursing staff, lack of control, lack of resources, inadequate salaries, difficult work conditions with long hours of work and frequent shifts, inadequate work safety, and poor career advancement (Abdo, S et al., 2016).

The findings of studies on burnout are controversial, with some studies revealing significant high rates of burnout among physicians, while other studies show much lower rates. Compared to other Egyptian studies, in Tanta University Hospital in 2016 and Aswan University in 2019, lower proportions of burnout in all its subscales were reported among both physicians and nurses at the emergency department compared to this study (Abdo. S et al., 2016) (Osman & Shaimaa 2019). In Suez Canal University Hospital in 2013, resident physicians were extremely burned out, with a high EE percentage of 81% and a high DP of 64%. However, low PA represented about 17% (Fahim et al., 2013). In comparison to Arab countries, there was a great variability in burnout prevalence. Pediatric residents in Saudi Arabia in 2018 showed EE (43%), while proportions of PA (40.6%) and DP (71.8%) were much higher than the current study. This may be due to working in a foreign country (Jamjoom & Park 2018). Burnout was much lower in the study performed in Qatar in 2018 compared to the current study. This may be due to a well-supported healthcare system (Salem M et al., 2018).

In the Palestinian study of 2017 on emergency workers, EE was higher (64.8%), DP was (38.1%), and PA was (34.6%), this may be due to wars and conflicts (Hamdan M & Hamra AA 2017). In contrast, a study on physicians in primary healthcare centers in Kuwait had relatively low mean percentage scores for EE and DP, but they had high mean scores for personal accomplishment, this may be due to a well-nourished lifestyle (Abdulghafour YA et al., 2011).

Previous European studies reported widely varying burnout rates among medical and paramedical teams, ranging from 15–82% (Hyman SA et al., 2011) (Roth M et al., 2011). In the USA and four European studies, the results were that, overall, 40% of participants met the criteria for burnout as follows: Portugal (68%), Italy (49%), USA (38%), Belgium (36%), and France (26%) (Marchalik D et al., 2019). In Africa, high rates of burnout among HCWs in Nigeria have been reported (Onylezugbo E & Nawfor C. 2010). The variation in the prevalence of burnout syndrome across different countries can possibly be explained by different factors such as country origin, variations in culture, patients' attitudes, the nature of the healthcare system (including structural and service delivery problems in different countries), the work environment, and the role of physicians. There are also differences in the assessment scales and study designs used in the various studies of burnout syndrome (Kolstad HA et al., 2011).

In the current study, as regards the role of some sociodemographic criteria as predictors of burnout among HCWs, increasing age significantly decreased the perception of EE ($\beta = -0.720$, $p = 0.001$), while it had no significant impact on DP ($p > 0.05$). While an increase in age was significantly associated with high burnout scale among Tanta University Hospital providers ($t = 5.097$, $p = 0.001$) (Abdo. S et al., 2016). Gender in the present study was not a significant predictor of EE, however, males were significantly more likely to develop DP than females ($\beta = 0.230$, $p = 0.000$). Also, male Jordanian nurses were significantly more likely to develop emotional exhaustion than males (Hamaideh SH. 2011). Marital status was not a predictor of burnout syndrome in the current study however, unmarried people are more depersonalized than married ones. Also, marital status was not significantly associated with burnout in the French study (Malaquin S et al., 2017). Physicians had a lower mean of EE than technicians and nurses. So being a nurse or a

technician is a predictor of higher EE in the current study. Technicians had a low mean of DP, whereas physicians and nurses were more depersonalized, however, type of job wasn't a predictor of DP. In Tanta University Hospital, high EE and low PA were higher among nurses, while physicians were significantly more depersonalized (Abdo, S et al., 2016). Clinical departments revealed significantly higher EE and DP than academic departments. Burnout dimensions were not significantly associated with the residence of the healthcare workers. While at Aswan University, healthcare workers originally not from Aswan perceived higher DP compared to those originally from Aswan ($\beta = 2.231$, $p = 0.035$) (Osman & Shaimaa 2019). There is an inverse relationship between burnout level and job satisfaction (Osman & Shaimaa 2019). In the present study, low job satisfaction significantly predicted increased risk for both EE ($\beta = -0.432$, $p < 0.0001$) and DP ($\beta = -0.391$, $p < 0.0001$), while job satisfaction was positively related to higher PA scores. These findings were similar to those of the Norwegian ICU health team in 2013, when job satisfaction negatively predicted high EE scores in both simple ($\beta = -0.02$, 95% CI -0.03 to -0.01) and multivariate linear regression ($\beta = -0.01$, 95% CI -0.02 to -0.01) (Myhren et al., 2013).

On the other hand, regarding burnout dimensions as predictors for job satisfaction, those with a high EE score and a high DP score were significantly more likely to have low job satisfaction scores ($\beta = -0.433$, $p < 0.0001$), ($\beta = -0.238$, $p = 0.002$), and the opposite was observed with PA ($\beta = 0.305$, $p < 0.0001$). These findings were in similar to those reported in the Aswan University study, where EE was negatively associated with overall job satisfaction ($\beta = -0.302$, $p < 0.001$) and PA was positively associated with overall job satisfaction ($\beta = 0.281$, $p < 0.001$), while DP showed no significant association with the overall job satisfaction dimensions (Osman & Shaimaa 2019).

Regarding other predictors of job satisfaction, age had no significant impact on job satisfaction in the current study, similar to studies among Ethiopian nurses (Semachew A et al., 2017). Gender significantly predicts job satisfaction. In the current study, being male was more satisfying in the general and intrinsic satisfaction scales ($\beta = 0.266$, $p < 0.001$), and ($\beta = 0.280$, $p < 0.001$). While there was no significant difference between males and females in job satisfaction in the Aswan study (Osman & Shaimaa 2019) and Ethiopian nurses (Semachew A et al., 2017). For marital status, there was no significant role on job satisfaction in this

study as well as among resident physicians in Assiut University Hospital, Egypt (Abdel-Salam DM et al., 2015). In the current study, being a physician is a predictor of being more satisfied than technicians compared to nurses in general and intrinsic satisfaction scales ($\beta = 0.189$, $p = 0.003$), ($\beta = 0.236$, $p < 0.001$). In the Intensive Care Unit, Norwegian physicians reported significantly higher job satisfaction scores compared to nurses (Myhren et al., 2013). However, physicians were significantly less satisfied with their job compared to nurses in the Aswan study ($\beta = -6.885$, $p = 0.000$) (Osman & Shaimaa 2019). The type of department was not a predictor; however, it significantly affected all subscales of job satisfaction. The number of working hours per day was a strong predictor of intrinsic satisfaction ($\beta = 0.127$, $p = 0.005$).

Limitations:

The results of the current study have certain limitations, such as the fact as the type of study is a cross sectional study, which is not an ideal tool for studying causes of burnout, and the number of participating physicians from the anesthesia department is small.

Conclusion and recommendations:

A significant degree of burnout was found among HCWs, especially nurses, technicians, and physicians. Technicians were highly satisfied with their work, followed by physicians, and lastly, nurses. For EE, predictors that increase EE are decrease in age, being a nurse or lab technician, from a clinical department, increase in years of work, increase in the number of working hours per day, and decrease in job satisfaction level. For DP, predictors that increase DP are (being male, being from a clinical department, and a decrease in job satisfaction level). Predictors of general and intrinsic satisfaction are being male, lab technicians and physicians more satisfied, current unmarried status, low EE, low DP, and high PA.

There should be enough education regarding job stress and improving coping with burnout symptoms. Healthcare facilities ought to implement preventive initiatives for their staff members. Work duties could be adjusted to accommodate healthcare personnel. In addition, further study is required to examine additional significant contributing factors that we did not examine.

Declarations:

Consent for publication: I confirm that each author has given their consent to submit the work.

Availability of data and material: Available

Competing interests: the authors declare that they have no competing interests.

References:

- **Abdel-Salam DM, Abdallah MA, Sayed WS, Ismail NA. (2015)** “Job Satisfaction among Resident Doctors at Assiut University Hospitals, Egypt”. *Nat J Res Comm Med.*;4(2):167.
- **Abdo, S. A., El-Sallamy, R. M., El-Sherbiny, A. A., & Kabbash, I. A. (2016).** “Burnout among physicians and nursing staff working in the emergency hospital of Tanta University, Egypt”. *East Mediterr Health J*, 21(12), 906-915.
- **Abdulghafour YA, Bo-hamrab AM, Al-Randic MS, Kamel MI, et al, (2011)** “Burnout syndrome among physicians working in primary health care centers in Kuwait”. *Alexandria Journal of Medicine.*; 47:351–7.
- **Chemali Z., Ezzeddine F. L., Gelaye, B., Dossett, M. L. et al, (2019).** “Burnout among healthcare providers in the complex environment of the Middle East” a systematic review. *BMC public health*, 19(1), 1-21.
- **Fahim, A. E. (2013).** “Predictors of job satisfaction among practicing dentists at hospitals in Suez Canal Area Egypt”. *International journal of occupational medicine and environmental health*, 26(1), 49-57.
- **Halcomb E, Bird S. (2020)** “Job satisfaction and career intention of Australian general practice nurses: A cross-sectional survey”. *J Nurs Scholarsh.*; 52:270–80.
- **Hamaideh SH. (2011)** “Burnout, social support, and job satisfaction among Jordanian mental health nurses”. *Issues Ment Health Nur.*;32(4):234-42.
- **Hamdan M, Hamra AA. (2017)** “Burnout among workers in emergency Departments in Palestinian hospitals: prevalence and associated factors”. *BMC Health Serv Res.*;17(1):407.
- **Hyman SA, Michaels DR, Berry JM, Schildcrout JS, et al, (2011)** “Risk of burnout in perioperative clinicians: a survey study and literature review”. *Anesthesiology*. Jan;114(1):194–204. PMID:21178675.
- **Iacovides A., Fountoulakis K. N., Kaprinis, S., Kaprinis, G. (2003).** “The relationship between job stress, burnout and clinical depression”. *Journal of affective disorders*, 75(3), 209-221.
- **Jamjoom RS, Park YS. (2018)** “Assessment of pediatric resident’s burnout in a tertiary academic Centre”. *Saudi Med J.*;39(3):296–300.
- **Kolstad HA, Hansen AM, Kærgaard A, Thomsen JF, et al. (2011)** “Job strain and the risk of depression: is reporting biased?” *Am J Epidemiol.* Jan 1;173(1):94–102. PMID:21071605.
- **Lu H, Zhao Y, While A. (2019)** “Job satisfaction among hospital nurses: a literature review”. *Int J Nurs Stud.* 94:21–31. doi: 10.1016/j.ijnurstu.2019.01.011.
- **Malaquin S, Mahjoub Y, Musi A, Zogheib E, et al. (2017)** “Burnout syndrome in critical care team members: A monocentric cross sectional survey”. *Anaesth Critical Care Pain Med.*;36(4):223-8.
- **Marchalik, D., C. Goldman, C., FL Carvalho, F., Talso, M.,et al., (2019).** “Resident burnout in USA and European urology residents: an international concern”. *BJU international*, 124(2), 349-356.
- **Maslach C, Schaufeli WB, Leiter MP: (2001)** “Job Burnout. *Annu Rev Psychol*”; 52:397-422.
- **Maslach C, Jackson SE, Leiter MP, Schaufeli WB, et al. (1986)** “Maslach burnout inventory: Consulting Psychologists”: Press Palo Alto, CA;
- **Meredith, L. S., Bouskill, K., Chang, J., Larkin, J., Motala, A., & Hempel, S. (2022).** Predictors of burnout among US healthcare providers: a systematic review. *BMJ open*, 12(8), e054243.
- **Myhren H, Ekeberg Ø, Stokland O, (2013)** “Job Satisfaction and Burnout among Intensive Care Unit Nurses and Physicians”. *Critical Care Research and Practice*; 1-6.
- **Onleyzugbo E, Nawfor C. (2010)** “Construct validation of nurse’s selfconcept questionnaire in Nigeria”. *Eur J Soil Sci.*; 15:467–74.

- **Osman, Doaa, and Shaimaa Abdlrheem. (2019)** "Burnout and job satisfaction among healthcare providers in Aswan University hospital, upper Egypt." *Journal of High Institute of Public Health* 49.1: 64-72.
- **Portoghese I, Galletta M, Coppola RC, Finco G, M. et al, (2014)** "Burnout and workload among health care workers: the moderating role of job control". *Saf Health Work.*; 5(3):152-7.
- **Rotenstein L, Torre M, Ramos M, Rosales R, Et al. (2018)** "Prevalence of Burnout Among Physicians". *JAMA.*; 320.
- **Roth M, Morrone K, Moody K, Kim M, et al. (2011)** "Career burnout among pediatric oncologists". *Pediatr Blood Cancer.* Dec 15;57(7):1168–73. PMID:21548010.
- **Sadat-Ali M, Al-Habdan IM, Al-Dakheel DA, Shriyan D. (2005)** "Are orthopedic surgeons prone to burnout?" *Saudi Med J.*; 26:1180–1182. [[PubMed](#)] [[Google Scholar](#)].
- **Salem M, Taher M, Alsaadi H, Alnema A, et al. (2018)** "Prevalence and determinants of burnout among primary healthcare physicians in Qatar". *World Fam Med.*;16(7):22-8.
- **Semachew A, Belachew T, Tesfaye T, Adinew YM. (2017)** "Predictors of job satisfaction among nurses working in Ethiopian public hospitals, 2014: institution-based cross-sectional study". *Hum Resource Health.*;15(1):31.
- **Stodolska A, Wójcik G, Barańska I, Kijowska V, Szczerbińska K. 2023** (Prevalence of burnout among healthcare professionals during the COVID-19 pandemic and associated factors) - a scoping review. *Int J Occup Med Environ Health.* 2023 Mar 2;36(1):21-58. doi: 10.13075/ijomeh.1896.02007. Epub 2023 Feb 2. PMID: 36727492; PMCID: PMC10464746.
- **Wada K, Arimatsu M, Yoshikawa T, Oda S, et al., (2008)** "Factors on working conditions and prolonged fatigue among physicians in Japan". *International Archives of Occupational & Environmental Health.*;82(1):59-66.
- **Weiss DJ, Dawis RV, England GW. (1967)** "Manual for Minnesota satisfaction questionnaire. Minnesota Studies in Vocational Rehabilitation". (22):120.
- **Weiss DJ, Dawis RV, England GW. (2018)** "Minnesota satisfaction questionnaire -Arabic Version Vocational Psychology Research United states" [cited 2018 30 November]. Available from: <http://vpr.psych.umn.edu/instruments/msq-minnesota-satisfaction> questionnaire.