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Work related stress among residents at Minia University Hospitals

Al Shimaa Nagi Ali
Industrial Medicine and Occupational Diseases Assistant lecturer, Department of Public Health and Preventive Medicine, Minia University, El Minia 61511, Egypt,
Corresponding author email: shimaanagi@gmail.com

Tarek Ahmed Abd-Elrahman
Assistant Professor, Department of Public Health and Preventive Medicine, Minia University, El Minia 61511, Egypt,
Email: tarek1.mohamed@mu.edu.eg

Tahani Mahmoud Refaat
Professor of Industrial Medicine and Occupational Diseases, Department of Public Health and Preventive Medicine, Minia University, El Minia 61511, Egypt,
Email: tahanimahmoud14@yahoo.com

Sarah Ahmed Refaie
Public Health, Assistant Professor, Department of Public Health and Preventive Medicine, Minia University 61511, El Minia 61511, Egypt,
Email: sarahreffai@yahoo.com

***Abstract*---**Background: occupational stress and its related psychological strain is a concern among resident doctors that may affect the patient care adversely. Residents face many stresses because of their high job demands and the nature of their job. They are often subject to high workload and the pressure due to direct involvement with patients, prolonged working hours, poor job opportunity and low support. Their multiple educational and clinical roles can also affect their performance and equality of personal or professional life. The aim of the study was to evaluate occupational stress among the residents of various medical specialists at Minia university hospitals and studying the risk factors of their work related stress. Methodology: this Descriptive, cross sectional study was conducted among residents working in different departments in five main Minia University Hospitals. Data was collected using self-administered questionnaire including general health questionnaire 12 items (GHQ) and questionnaire for stress risk factors. In this study, 218 residents from a total of 243 accepted to participate in the study with response rate 89.7%, their age ranged from 24 to 29 years old

(mean ± SD = 27.17 ± 1.2 years), 52.3% of them were males and 47.7% were females. Results: 45% of the residents were stressed, 21.6% of them scored mild stress and 23.4% of them scored severe stress. Regarding stress risk factors, Long working hours (OR=6.6, p≤0.001), perception of doing High workload (OR=4.1, p=0.008), night shifts (OR=3.1, p=0.002), Short breaks (OR=3.1, p=0.03), difficulty in taking vacation (OR=2.5, p=0.04) were the most important independent predictors for work related stress by using logistic regression model. Conclusion: Stress is prevalent among residents working at Minia University Hospitals which imply that immediate intervention programs are needed to overcome these problems and to keep residents physically and mentally healthy.

***Keywords*---**occupational, residents, stress.

Introduction

Stress is commonly recognized as a "consequence of the failure of an individual to respond adequately to mental, emotional, or physical demands." [1]. Stress is a feeling of emotional or physical that is evoked by any event or thought that results in frustration, anger, or nervousness. Resident physicians experienced high rates of stress and depression [2]. This is so because of increased expectations and responsibilities and the fact that residents are expected to be proficient clinicians, educators, researchers and administrators at the end of their training. Beyond the effects of stress on individual's health, residentdepression and stress has been linked to poor-quality patient care and increased medical errors [3]. Stress had been linked with musculoskeletal disorders, high blood pressure, disturbed metabolism, cardiovascular problems, mental health problems and premature mortality [4]. Physicians are exposed to many stressors, such as the burden imposed by expectations of a high degree of professionalism, responsibility for patient well-being and maintenance of relationships with patients and health workers, as well as concerns about medical errors and malpractice litigation [5]. In addition, there are a number of issues identified as being stressful for residents, such as financial problems and low income, being evaluated without enough training, and being under psycho- logical and physical pressure from both their superiors and patients. Stress can also be the result of any workplace stressors which are related to role characteristics including role conflicts (such as the conflict between duty to super- visors, or attending physicians and patients expectation), role ambiguities (the tasks were not defined well) and role overload (too many tasks and daily work load for the available time, and other constraints in fulfilling heavy duty ex- pected from them and responsibility for patients' health[6, 7, 8]. Workload, responsibility, exam stress, financial difficulties and high work hours per week and less rest time were considered as the effective factors to create stress in residents [6, 9].

Objectives

1. To assess the level of work related stress among residents working at Minia University hospitals.

2. To determine the risk factors of work related stress among residents at Minia University hospitals.

Subjects and methods

A cross-sectional study was conducted among residents at Minia University Hospitals in the period from first of August 2021 to end of October 2021. Data obtained from the information center revealed that there were243 residents at Minia University hospitals in all its departments in year 2021. In this study we intended to include all residents of the five different hospitals. Only 218 of residents have completed the questionnaire with response rate 89.7%.A self-administered questionnaire was completed by the residents. The questionnaire includes:

A) Socio-demographic and job characteristics information.
B) General Health Questionnaire-12 items: it is a validated questionnaire with high sensitivity that has been widely used to screen populations for stress. It was decided to use the Likert style for scoring (0-1-2-3). All those who had scored 15 and below were labeled as not stressed, those who had scored above 15 were considered to be in mild stress and those who scored 20 and above were considered to have severe stress.
C) Work related stress questionnaire (modified form of Al Omar, 2003 questionnaire: It included statements cited in the literature as stress causes and classified into the following categories: leisure time factors, factors intrinsic to work, work environment and relationships with others at work. For scaling the responses a five-point Likert scale of agreement or disagreement was used. The format of a typical five-level Likert item is: 1= strongly disagree, 2= disagree, 3= neutral, 4=agree and 5= strongly agree.

Pilot study was carried out on 20 residents to test the tool to ensure its practicability and applicability. Data were revised, coded and entered to personal computer and analyzed using SPSS version 20. Suitable analysis was done according to the type of data.Ethical committee and administrative approvals were obtained before conducting the study.

Results

Table (1)
The socio-demographic characteristics of the residents, Minia University Hospitals

Socio-demographic characteristics	Frequency N=218	Percentage %
Age Range Mean ± SD	 24-29 27.17±1.203	
Gender Female Male	 104 114	 47.7 52.3

Marital status		
Single	70	32.1
Married	146	67.0
Divorced	2	0.9
Having children		
No	106	48.6
Yes	112	51.4
Number of children *(N=112)*		
1 child	47	41.96
2 children	63	56.25
3 children	2	1.8
Pregnancy status*		
Pregnant	22	21.2
Not pregnant	82	78.8
Residency		
Away from the work place	52	23.9
Near the work place	166	76.1
Smoking status		
Non smokers	200	91.7
Smokers	18	8.3
Number of cigarettes per day**		
≤20	14	77.7
21-40	4	22.3

Only 218 of residents have completed the questionnaire with response rate 89.7%. The demographic characteristics of the studied residents showed that their age ranged from 24 to 29 years old (mean age 27.17±1.2), 67% of them were married and 52.3% of them were males, 51.8% of them having children, 76.1% of them live in the same country of their work and the majority (91.7%) were non-smokers (table 1).

Table (2
Job characteristics of the studied sample, Minia University Hospitals

characteristics	stressed n=98 N (45%)	Not Stressed n=120 N (55%)	x2	P
Job rank				
• Juniors (27.1%) up to 1 year experience	18(18.4%)	41(34.2%)	10.797	0.013*
• Mid-seniors (23.4%) up to 2 years experience	20(20.4%)	31(25.8%)		
• Seniors (30.7%) up to 3 years experience	36(36.7%)	31(25.8%)		
• Post seniors (18.8%) more than 3 years experience	24(24.5%)	17(14.2%)		
departments	9(9.2%)	8(6.7%)		
• Anesthesia and ICU (7.8%)	3(3.1%)	2(1.7%)		

• Clinical pathology (2.3%) • Internal medicine (34.4%) • Gynecology and obstetrics (7.3%) • Pediatric (9.2%) • Radiology (6.9%) • Surgery (32.1%)	31(31.6%) 9(9.2%) 6(6.1%) 9(9.2%) 31(31.6%)	44(36.7%) 7(5.8%) 14(11.7%) 6(5.0%) 39(32.5%)	5.31	0.5

Exploring the job characteristics revealed that 27.1% of the residents were juniors, 23.4% were mid seniors, 30.7% were seniors while 18.8% were post seniors. And there is statistically significant difference (p=0.013) between the different job rank as regard presence of work related stress.

As regarding different departments, residents working at gynecology and obstetrics department were 7.3% of the studied sample, 9.2% at pediatric department, 34.4% at internal medicine department, 32.1% at surgery department, 6.9% at radiology and 2.3% at clinical pathology department. Residents of internal medicine departments (31.6%) and surgery departments (31.6%) were the most stressed ones, but there is no statistically significant difference could be observed between different departments as regard presence of work related stress (table 2).

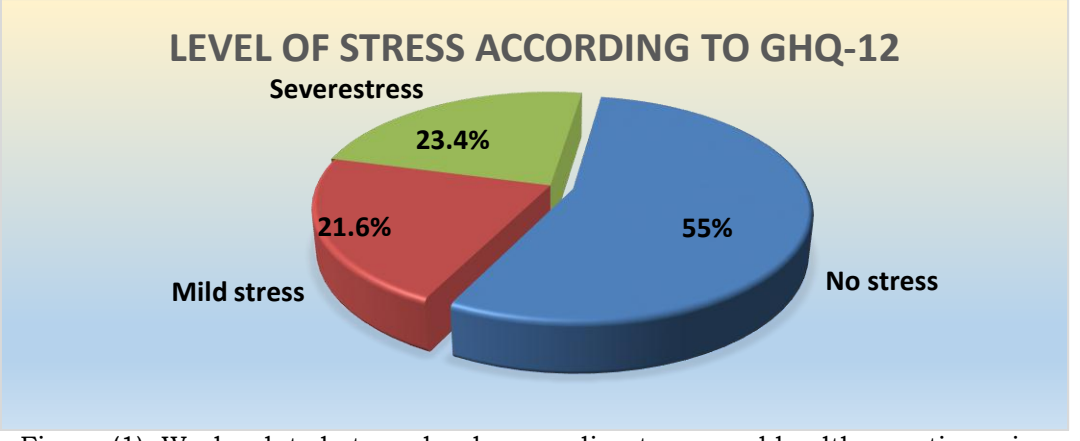

Figure (1): Work related stress levels according to general health questionnaire-12 items

Work related stress is prevalent among residents working at Minia

University Hospitals. 45% of them were suffering from work related stress. 23.4% of the residents had severe stress (diagram 1). In the current study Multivariate logistic regression analysis revealed that Long working hours (OR=6.6, p≤0.001), perception of doing High workload (OR=4.1, p=0.008), night shifts (OR=3.1, p=0.002), Short breaks (OR=3.1, p=0.03), difficulty in taking vacation (OR=2.5, p=0.04) were the most important independent predictors for work related stress among the studied group (table 3).

Table (3)
Multivariate logistic regression analysis for the most important independent predictors of work related stress among residents at Minia University Hospitals

Independent predictors	B	P	Odds ratio	95% CI	
				Lower limit	Upper limit
Long working hours	1.894	0.001*	6.649*	2.820	15.674
High work load	1.414	0.008*	4.113*	1.452	11.654
Night shifts	1.145	0.002*	3.143*	1.535	6.438
Short breaks	1.141	0.038*	3.130*	1.067	9.182
difficulty in taking vacation	0.933	0.044*	2.543*	1.026	6.300
inability to practice hobbies or sports due to work	0.893	0.083	2.441	0.891	6.693
Ineffective communication system with supervisors	0.624	0.108	1.867	0.873	3.994
Perception of doing work of no value	0.348	0.344	1.416	0.690	2.906
Uncomfortable working environment	0.423	0.378	1.527	0.596	3.910
Ineffective communication system with patients	0.128	0.749	1.137	0.519	2.491
Limited opportunities for education and training in this hospital	0.099	0.808	1.104	0.498	2.449
suffering from family problems due to work	-0.079-	0.857	0.924	0.390	2.187
Age	-0.051-	0.710	0.951	0.728	1.241

N.B. the dependant variable is stress
***** Statistically significant

Discussion

The current study showed that 45% of the residents were suffering from work related stress. About one quarter (23.4%) of the residents had severe stress while more than half of residents (55%) didn't had stress.

Comparable with our results OM & SF, 2015 (10) in a cross-sectional study on physicians in different departments at Banha three major hospitals in Egypt reported that the percentage of studied physicians with high total job stress score was 26.2%. As well the result of job stress among physicians was similar to many other studies as (Elit et al., 2004) (11) who conducted a cross-sectional survey on a group of Canadian gynecologic oncologists and they found that approximately 26% of physicians are experiencing high stress.

Also, the study by Hassan et al., 2020 (12) enrolled Resident physicians in a cross-sectional study at Tanta University Hospitals, reported that only 4 (1.4%) had low stress while 169 (60.8%) had moderate and 105 (37.8%) had high stress. The present study showed that there is statistically significant difference between the different job rank as regard presence of work-related stress, however no statistically significant difference could be observed between different departments as regard presence of work-related stress.

While, the study by OM & SF, 2015 (10) reported that, there were no statistically significant associations between work related stress and Job title but significantly associated with Specialty. Also, in disagreement with our results the study by

Hassan et al., 2020 (12) revealed there were no statistically significant associations between work related stress and Resident category but significantly associated with Department. As well the study by Salam, 2016 (13) reported that here were statistically significant associations between work related stress and Professional Group. The variations in results may be due to the variations in studied sample characteristics

In our study multivariate binary logistic regression model was performed to ascertain the most important independent predictors of work-related stress. It shows that long working hours (OR=6.6, p≤0.001), perception of doing High workload (OR=4.1, p=0.008), night shifts (OR=3.1, p=0.002), Short breaks (OR=3.1, p=0.03), difficulty in taking vacation (OR=2.5, p=0.04) were the most important independent predictors for work related stress. Although other variables played a significant role in the univariate analysis, they don't show a significant role in the multivariate analysis. These results in accordance with results of Al-Dubai SAR et al., 2021 who studied factors Associated with Stress and Depression among Family Medicine Residents in Saudia arabia, and found that Stress was associated with work overload (P=0.032)

Also, these results were supported by the previously mentioned results by Hassan et al., 2020 (12); Ebrahimi & Kargar, 2018 (14); Salam, 2016 (13); OM & SF, 2015 (10) as they found a significant correlation between work-related stress and age, working hours, work load and night shifts. Furthermore, these results are confirmed by the result of *Al-Dubai et al (2013)* (15) which revealed that time pressures, difficulty to meet deadlines and lack of adequate comfortable facilities for doctors were of the most important significant stressors among Malaysian residents. In addition, *Al Omar (2003)* (16) showed that long working hours and short breaks were of the most important significant sources of work related stress. Moreover, in a study conducted by *Bhatia et al (2010) (17),* time pressure was found to be the most stressful factor whereas discrimination was the least stressful factor of the given possible sources of stress in everyday life.

Conclusion

Conclusion drawn from this study is that the degree of work related stress among residents in Minia University Hospitals is considerably high (45%); this stress is mainly related to their work place and caused by a number of workplace stressors identified by them. The most important independent risk factors identified by logistic regression model were: that long working hours perception of doing High workload, night shifts, Short breaks, difficulty in taking vacation. There is a need for stress management programs during residency training period. That requires a culture change for doctors and their organizations in order to obtain wellness and a sense of balance between their work and personal lives.

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