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EXPLORING JOB SATISFACTION AND BURNOUT AMONG CARDIOLOGISTS IN EGYPT: A CROSS-SECTIONAL STUDY

By

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Abstract

Introduction: Rising levels of stress and exhaustion among healthcare providers negatively impact productivity, patients care and their safety. Burnout is defined as a psychological state of exhaustion, loss of motivation and reduced sense of fulfillment. **Aim of Work:** To assess prevalence of burnout and level of job satisfaction among cardiologists working in Egypt. **Materials and Methods:** A survey based on the Mini-Z questionnaire was used. A few questions were added to adapt for variables encountered in the Egyptian physician lifestyle. A web-based anonymous questionnaire was sent to 550 Egyptian cardiologists via e-mail and/or instant messaging software. **Results:** Three hundred cardiologists (median age of 34 years, 75.33% males) working in Egypt responded to the survey. The majority (63.6%) were general cardiologists and more than half (52.3%) worked as registrars. Fifty percent of the participants worked more than 60 hours weekly and 10% exceeded 100 working hours weekly and 45.6% worked in three or more healthcare facilities. About 72% reported feeling significantly stressed because of their jobs and 79.8% were dissatisfied with their income. Burnout was stated by 74.6% of the participants, 36.6% once thought about a career shift and 69.9% of the respondents considered immigration. Factors associated with higher levels of burnout included longer weekly working hours (more than 40 hours) (<0.001), working in more than one workplace (0.02), income dissatisfaction (<0.001) and lack of feeling of career progression. **Conclusion and Recommendations:** High levels of job-related stress and burnout were observed among cardiologist working in Egypt. Interventions at both the personal and organizational levels are highly recommended to face this serious problem

Keywords: Burnout, Job satisfaction, Cardiologists, Work stress, Egypt and Mental Health

Introduction

Burnout assessment is becoming increasingly popular among physicians worldwide. Stress and exhaustion are believed to negatively impact productivity, patient care, and patient safety among healthcare providers. A standard goal for health care for a long time has been the Triple Aim of improving population health, enhancing patient care, and reducing costs (Berwick et al., 2008). It has been suggested, however, that as a result of growing awareness that physician dissatisfaction directly hinders the achievement of these goals. The Triple Aim should be expanded into a Quadruple Aim to include the fourth goal of improving providers' work life and environment (Bodenheimer and Sinsky, 2014).

Burnout is a psychological state of exhaustion, loss of motivation, and a reduced sense of fulfillment (Michel et al., 2017). It is likely that burnout will remain stable over time due to chronic exposure to ongoing and prolonged stressors (Leiter and Maslach, 1988). In contrast to burnout, job engagement can be defined as a state of high energy, a sense of belonging and involvement, and feelings of self-efficacy (Leiter and Maslach, 2003).

Various factors have been identified as contributing to higher levels of job-related stress, such as long working hours, inadequate compensation, limited autonomy, and increased electronic documentation (Mehta et al., 2019; Nicholls, 2019). Consequently, the levels of burnout among physicians are expected to vary across different geographical areas, depending on the work environment. As far as we know; the levels of burnout and work-related stress among cardiologists working in Egypt have not been studied before.

Aim of Work

To assess prevalence of burnout and level of job satisfaction among cardiologists working in Egypt.

Materials and Methods

Data collection was performed using a web-based questionnaire hosted on the online platform 'Google Forms'. The study description, the invitation to participate, and the link to the online questionnaire were sent via e-mail and/or instant messaging software (WhatsApp and Telegram) by the investigators to 550 cardiologists working in Egypt. The survey was designed to maintain participant anonymity and ensure the confidentiality of information

The questionnaire was primarily based on the Mini-Z questionnaire, which assesses professional wellness and consists of 10 variables related to job-related burnout (Linzer et al., 2016). However, to account for variables specific to the lifestyle of Egyptian physicians that were believed to be associated with burnout levels, a few additional questions were added by the study authors. These included inquiries about the number of workplaces, working hours per week, the percentage of work in governmental versus private hospitals, and considerations of leaving the country or any immigration plans.

Consent

Participation in the survey was voluntary, and all participants provided informed consent for their anonymous data to be used for research purposes.

Ethical Approval

The study received approval from the Research Ethical Committee of Department of Cardiovascular Medicine, Cairo University.

Data Management

Statistical analyses were performed using R language and RStudio version 2022.12.0. Descriptive statistics were reported in terms of frequencies and percentages. Categorical variables were compared using the chi-square test, while means were compared using the standard Student t-test. A p-value less than 0.05 was considered statistically significant.

Results

Sample characteristics

During the course of the study, a total of 550 physicians were selected as participants and were invited to complete the survey. Out of these, we received 382 responses, yielding a response rate of 69.5%. To ensure the reliability and validity of the data, certain responses were excluded from the analysis. Specifically, 81 responses were eliminated as they originated from cardiologists practicing outside of Egypt, and an additional response from an Egyptian cardiologist was excluded due to significant missing variables resulting from an incomplete submission form.

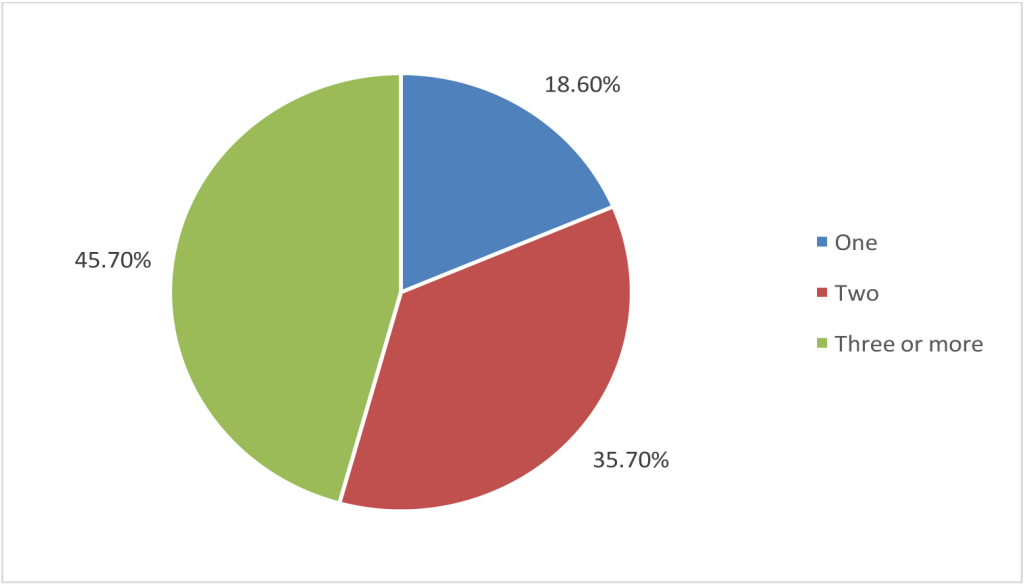

Figure 1: Cardiologists' Distribution across Healthcare Facilities

Figure (1) describes number of healthcare facilities at which the cardiologist worked. Approximately 35.7% of the participants mentioned that they worked in two hospitals, while 45.7% reported working in three or more healthcare settings. Only a minority of 18.7% dedicated their work solely to one hospital.

Table 1 (A): Prevalence of burnout based on participant characteristics.

Characteristics	Overall	Prevalence of burnout		p-value
		NO	Yes	
	(No = 300)	(No = 76)	(No = 224)	
Gender				
Female	74 (24.7%)	20 (26.3%)	54 (24.1%)	0.817
Male	226 (75.3%)	56 (73.7%)	170 (75.9%)	
Age				
25-29	53 (17.7%)	7 (9.2%)	46 (20.5%)	
30-34	107 (35.7%)	20 (26.3%)	87 (38.8%)	
35-39	73 (24.3%)	21 (27.6%)	52 (23.2%)	
40-44	38 (12.7%)	12 (15.8%)	26 (11.6%)	**<0.001***
45-49	15 (5.0%)	6 (7.9%)	9 (4.0%)	
50-59	7 (2.3%)	5 (6.6%)	2 (0.9%)	
60-69	7 (2.3%)	5 (6.6%)	2 (0.9%)	
Subspeciality				
Electrophysiologist	8 (2.7%)	3 (3.9%)	5 (2.2%)	
General Cardiologist	191 (63.7%)	37 (48.7%)	154 (68.8%)	
Interventional cardiology	62 (20.7%)	20 (26.3%)	42 (18.8%)	0.0125
Non-invasive Cardiologist	39 (13.0%)	16 (21.1%)	23 (10.3%)	
Role				
Consultant	61 (20.3%)	27 (35.5%)	34 (15.2%)	
Consultant /Lecturer	1 (0.3%)	0 (0%)	1 (0.4%)	**<0.001***
Resident	81 (27.0%)	11 (14.5%)	70 (31.3%)	
Specialist	157 (52.3%)	38 (50.0%)	119 (53.1%)	
Work Location				
Insurance Hospitals	31 (10.3%)	4 (5.3%)	27 (12.1%)	
Ministry of health Hospitals	82 (27.3%)	15 (19.7%)	67 (29.9%)	
Other public sectors hospitals	16 (5.3%)	1 (1.3%)	15 (6.7%)	0.0152
Others	13 (4.3%)	4 (5.3%)	9 (4.0%)	
Private sector	43 (14.3%)	14 (18.4%)	29 (12.9%)	
Research Institutes	11 (3.7%)	6 (7.9%)	5 (2.2%)	
University hospitals	104 (34.7%)	32 (42.1%)	72 (32.1%)	

*: Statistically significant

Table 1 (A) described the prevalence of burnout among participants based on their demographics, subspecialty, the respondents role and work location. The prevalence of burnout was significantly higher among residents (31.3%) and specialists (53.1%) compared to consultants (15.2%, p<0.001). Among the 300 participants, the median age was 34 years, and 75.3% of were men. In terms of specialization, 63.7% identified themselves as general cardiologists. The remaining participants reported working as interventionists (20.7%), non-invasive cardiologists (13%), and electro physiologists (2.7%)

It is noteworthy that the majority, specifically 81.3% of the participants, spent over half of their working hours in governmental hospitals, while the remaining 14.3% primarily worked in private hospitals. There was no significant difference in burnout rates between physicians primarily working in governmental hospitals (83.4%) versus those in the private sector (12.9%) .

Table 1 (B): Prevalence of burnout based on participant characteristics

Characteristics		**Prevalence of burnout**		**p-value**
	Overall (No = 300)	**NO (No = 76)**	**Yes (No = 224)**	
Number of work places				
1	56 (18.7%)	16 (21.1%)	40 (17.9%)	
2	107 (35.7%)	32 (42.1%)	75 (33.5%)	
3	83 (27.7%)	18 (23.7%)	65 (29.0%)	
4 or more	54 (18.0%)	10 (13.2%)	44 (19.6%)	0.334
Number of work hours/week				
20-40	66 (22.0%)	30 (39.5%)	36 (16.1%)	
40-60	84 (28.0%)	24 (31.6%)	60 (26.8%)	
60-80	75 (25.0%)	9 (11.8%)	66 (29.5%)	
80-100	47 (15.7%)	6 (7.9%)	41 (18.3%)	
100 or more	28 (9.3%)	7 (9.2%)	21 (9.4%)	**<0.001***
Public hospitals work percentage				
<25%	83 (27.7%)	20 (26.3%)	63 (28.1%)	
26-50%	86 (28.7%)	31 (40.8%)	55 (24.6%)	
51-75%	84 (28.0%)	12 (15.8%)	72 (32.1%)	
76-100%	47 (15.7%)	13 (17.1%)	34 (15.2%)	0.0126
Electronic medical records usage				
NO	158 (52.7%)	38 (50.0%)	120 (53.6%)	
Yes	142 (47.3%)	38 (50.0%)	104 (46.4%)	0.685

Income satisfaction				
NO	238 (79.3%)	49 (64.5%)	189 (84.4%)	
Yes	62 (20.7%)	27 (35.5%)	35 (15.6%)	**<0.001***
Career progression satisfaction				
NO	223 (74.3%)	42 (55.3%)	181 (80.8%)	
Yes	77 (25.7%)	34 (44.7%)	43 (19.2%)	**<0.001***
Do you consider career shift?				
NO	190 (63.3%)	66 (86.8%)	124 (55.4%)	
Yes	110 (36.7%)	10 (13.2%)	100 (44.6%)	**<0.001***
Did you think of migration?				
NO	90 (30.0%)	43 (56.6%)	47 (21.0%)	
Yes	209 (69.7%)	33 (43.4%)	176 (78.6%)	
Missing	1 (0.3%)	0 (0%)	1 (0.4%)	**<0.001***

*: Statistically significant

Table 1 (B) showed the prevalence of burnout among cardiologist based on their work pattern and their subjective feeling of income satisfaction and career progression. Factors associated with higher levels of burnout included longer weekly working hours (more than 60 hours) ($p<0.001$), dissatisfaction with income ($p<0.001$), and a lack of perceived career progression ($p<0.001$). As regards working hours, the survey revealed varying patterns among the participants. Approximately 22% of the respondents reported working between 20 and 40 hours per week, while 28% worked between 40 and 60 hours per week. Notably, 40.7% of the participants stated that they were working more than 60 hours per week, with 15.7% of the respondents affirmed an exceptionally demanding workload of 80 to 100 hours weekly. As regards electronic medical reporting, slightly more than half of the responders (52.7%) declared the absence of this system in their workplaces. However, 47.3% of the participants acknowledged the availability of a reasonable amount of time for documentation purposes

The majority of participants expressed dissatisfaction with their income (79.3%) and their career progression (74.3%). Burnout was reported by 74.7% of the respondents, with 36.7% indicating that they had considered a career shift, and 69.7% contemplating migration as a potential solution

Job satisfaction, work related stress and burnout.

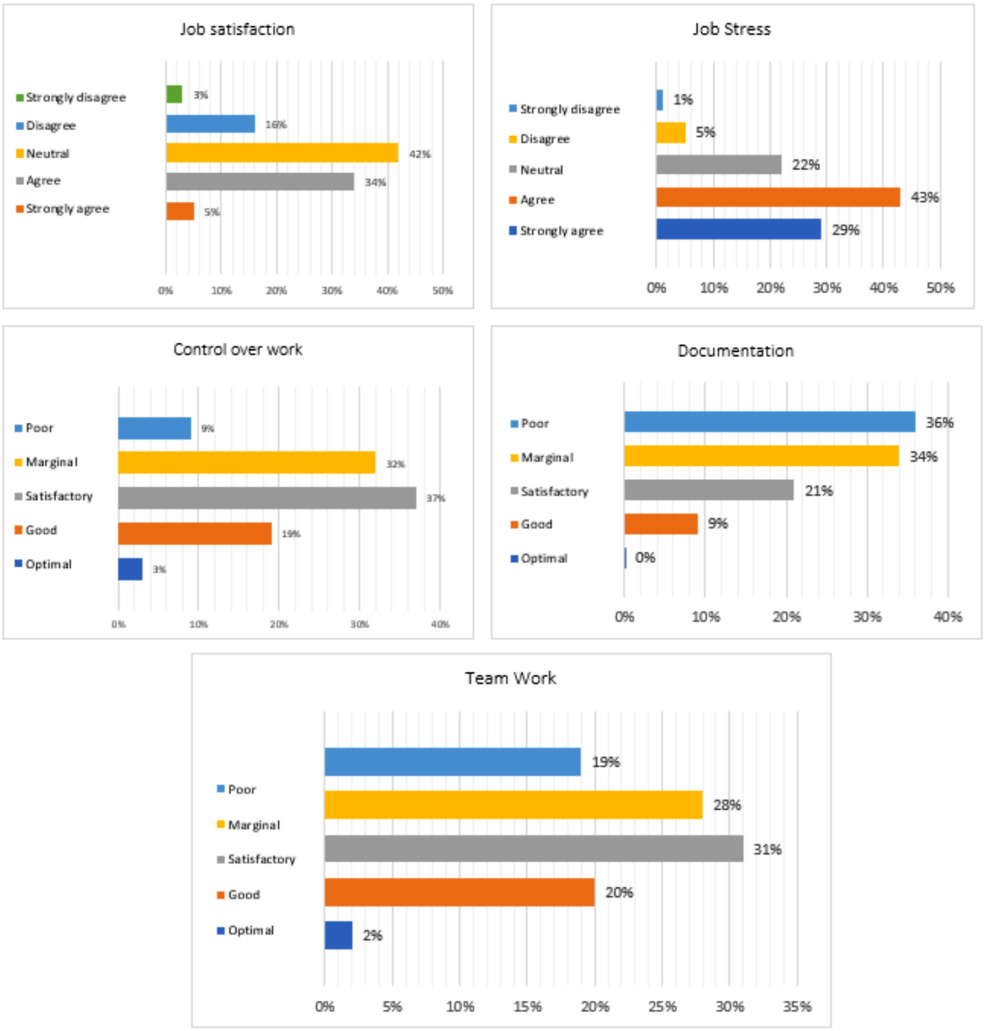

Figure 2: Mini-Z Burnout Survey Responses: Assessing Stress Levels Among the Cardiologists

Figure 2 represented stress levels among cardiologist based on their responses in Mini-Z burnout survey. A significant proportion of responding cardiologists, specifically 72%, reported experiencing a substantial amount of stress while carrying out their work duties. Among them, less than half of the participants (39%) expressed job satisfaction. When assessing cooperation within the care team, 53% described it as optimal, good, or satisfactory, while 47% described it as marginal or poor.

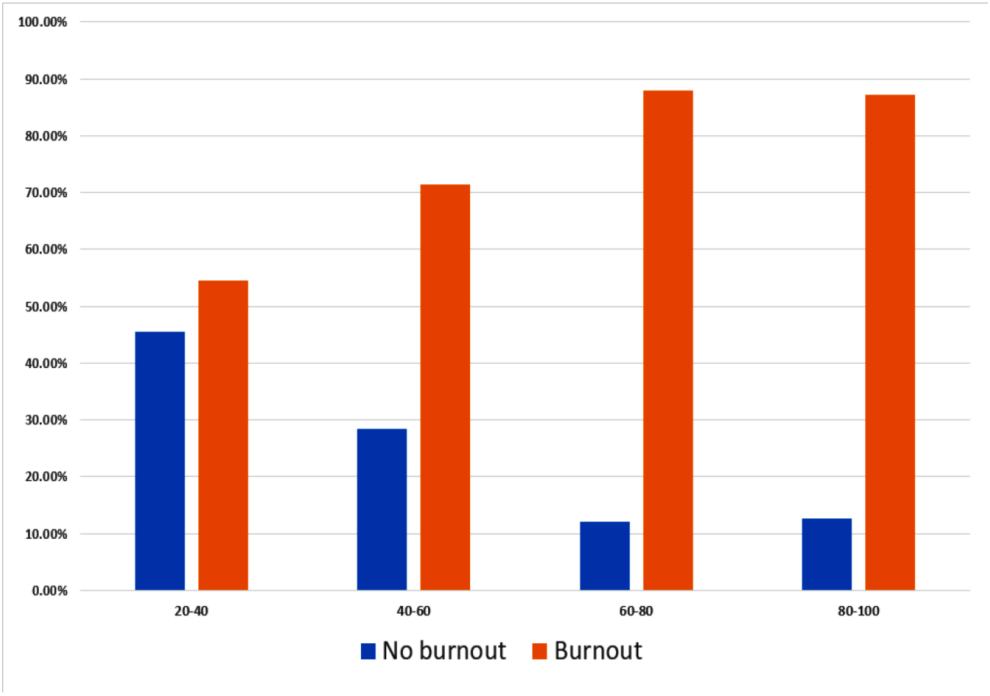

Figure 3: Prevalence of burnout based on weekly working hours

Figure 3 showed that a higher percentage of individuals experiencing burnout was observed among those working more than 60 hours per week.

Discussion

The findings from the current survey highlighted a significant prevalence of work-related stress and burnout among cardiologists in Egypt. A considerable majority of the participants expressed dissatisfaction with various aspects of their professional lives, including their roles, income, and career progress. To the best of our knowledge, this study represents the first investigation to provide insights into the work patterns, job satisfaction, and work-related stress experienced by cardiologists in Egypt.

While burnout can affect physicians across various medical specialties, it is believed to be more prevalent among those who devote a significant time to the care of critically ill patients. Moreover, cardiologists, in particular, are considered to be at higher risk of experiencing burnout due to the demanding nature of their specialty. Typically, cardiologists are skilled and competitive young physicians who have high expectations of themselves and face pressure from their professional environment (Panagioti et al., 2018, Nicholls, 2019). In a recent survey, burnout was reported by 26.8% out of 2,313 cardiologists in the united states (Mehta et al., 2019) while a higher percentage (42%) was suggested by a Medscape survey (Kane , 2022). In the present study conducted in Egypt, rates of burnout were found to be significantly higher (74.4%) among cardiologists compared to previous reports. Approximately three-quarters of the respondents acknowledged experiencing feelings of burnout, indicating a substantial burden within the profession in this particular context

Increased workload is one of the well-known factors that contributes to higher levels of stress and exhaustion (Michel et al., 2017, Youssef et al., 2021). The majority of participants (78%) reported long working hours (more than 40 hours/week), with nearly half of the physicians working for more than 60 hours per week (Table 1B). The working hours of cardiologists in Egypt were longer as compared with the United States where the mean weekly hours was previously reported to be about 51 hours in 2019 before the COVID pandemic (Hu and Dill, 2021). In Australia, a study among junior doctors revealed that the mean weekly working hours were estimated to be 50.1 hours, and those who worked more than 55 hours per week had a significantly higher risk for mental disorders and

suicidal ideation (Petrie et al., 2020). Additionally, another cross-sectional study demonstrated that when compared to a standard 40-hours workweek, the risk of job-related burnout doubled when working hours exceeded 60 hours per week, tripled when they exceeded 74 hours per week, and quadrupled when they exceeded 84 hours per week (Lin et al., 2021). These findings emphasize the potential detrimental impact of prolonged working hours on the well-being of healthcare professionals and the need for effective strategies to address workload-related factors and promote a healthier work-life balance in the medical field.

The practice of working in multiple hospitals is a distinctive challenge prevalent in the work pattern observed in Egypt. The results of the current survey revealed that only 18.7% of participants worked in a single hospital, while nearly half of the respondents (45.7%) were engaged in three or more healthcare settings (Table 1B). Limited information is available concerning this specific issue in other countries, indicating a lack of comprehensive data on the matter. This work pattern is often associated with various factors, including dissatisfaction with income, the pursuit of better medical training opportunities available in different locations, and unsatisfactory working conditions encountered in certain public hospitals (Johannessen and Hagen, 2014).

In the present survey, 69.7% of the participants stated a desire for immigration (Table 1B). Though physicians' immigration is not a new phenomenon, this high percentage of doctors considering moving abroad should be alarming. The root causes for physicians' immigration differ from one region to another, yet certain push and pull factors are usually present (Klein et al., 2009). Lack of satisfaction of career progression, insufficient opportunities for training and poor financial compensation are usually the main push factors. On the other hand, favorable policies for immigration besides better quality of life and work are among the most significant pulling factors. Undoubtedly, this issue has a negative impact on the donor country which invests a lot in the process of preparation of future physicians. The healthcare system is seriously affected as well by taking away its most integral units.

Limitations of the study

The Mini-Z questionnaire assesses professional wellness and consists of 10 variables that specifically measure job-related burnout. However, to address the unique variables and lifestyle factors relevant to Egyptian physicians that may contribute to burnout levels, the study authors introduced additional questions. These supplementary inquiries encompassed factors such as the number of workplaces, working hours per week, the proportion of work conducted in governmental versus private hospitals, and considerations of leaving the country or any immigration plans.

It should be noted that these additional questions were not subjected to a formal validation process or assessed for reliability prior to their inclusion. Consequently, there is a potential risk of measurement bias or inconsistent responses associated with these newly incorporated items. Therefore, caution is advised when interpreting and drawing conclusions based on the results of these particular questions.

Additionally, it is important to acknowledge that certain questions within the survey were deemed not applicable to the cardiologists in Egypt. Consequently, these specific questions were excluded from the survey instrument. The decision to omit these questions was made to ensure the relevance and appropriateness of the survey content for the study participants.

While the inclusion of these additional questions aimed to capture the unique aspects of burnout experienced by Egyptian physicians, it is crucial to recognize the need for future studies to undertake rigorous validation procedures to ensure the reliability and validity of such modifications. By employing validated instruments or developing new measures specific to the Egyptian context, a more comprehensive understanding of the factors contributing to burnout among cardiologists in Egypt can be achieved.

Conclusion

The prevalence of burnout and work-related stress among cardiologists in Egypt was found to be alarmingly high. Several contributing factors were identified, including long working hours, the practice of working in multiple healthcare facilities, inadequate compensation, and dissatisfaction with career progression. Addressing this serious issue requires interventions at

both the personal and organizational levels.

Recommendations

Numerous interventions have been proposed in the past to address and alleviate burnout among physicians. These interventions can be categorized into two main approaches: those targeted towards the individual physician and those aimed at the organizational level (Panagioti et al., 2017). Physician-directed measures, like small group facilitated discussions, primarily focus on improving self-care practices and cultivating self-awareness (West et al., 2014). Teaching young physicians' strategies to manage stress and develop resilience is also an essential step in addressing burnout. However, it is crucial to acknowledge that the responsibility lies not solely on the physicians but also on the broader healthcare system to create a supportive and sustainable environment (Lown et al., 2015).

Addressing burnout requires substantial changes at the organizational level within medical institutions simple adjustments like modifying schedules, restricting the duration of physicians' shifts, reducing workload, providing protected rest time, and enhancing financial compensation can yield remarkable outcomes in mitigating burnout among physicians (Panagioti et al., 2017). In a recent review, Shanafelt and Noseworthy, 2017; suggested some organizational approaches that can improve physicians engagement and reduce levels of stress and burnout. They emphasized the significant contribution of effective leadership to physicians' well-being and suggested selecting competent leaders, providing them with appropriate preparation and resources, and regularly evaluating their performance. Additionally, they highlighted the importance of using rewards and promotions in a fair and meaningful manner, and promoting flexibility and work-life balance. Most of these suggestions are not costly and can be implemented by any healthcare organization seeking to improve the well-being of its medical staff.

Conflict of interest

The authors declared that they have no competing of interest.

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