

## The Health Status of Emergency Physicians at Salmaniya Medical Complex; Kingdom of Bahrain: A Cross-Sectional Study

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### ABSTRACT

**Background:** Emergency physicians (EPs) are at risk of developing mental and physical conditions due to the nature of their stressful work. There is limited data on the general health of EPs, thus this study aims to study the health status of EPs at Salmaniya Medical Complex (SMC) which provides emergency services in the Kingdom of Bahrain.

**Methods:** A cross-sectional study investigating a total of 78 EPs working at SMC using an electronic survey, which included physician's demographic data, medical characteristics, and conditions within the last 5 years.

**Results:** The survey had a response percentage of 96.7% (n = 58). Forty-eight (48.3%) percent of EPs considered themselves in good health. Also, 72.4% of EPs have had at least one medical condition, and 43.1% had more than one medical condition. In the past five years, EPs suffered mostly from burnout (43.1%), anxiety (24.1%), and depression (17.2%). With regards to physical medical conditions, the prevalence of dyslipidemia (13.8%), obesity (13.8%), diabetes (12.1%), and hypertension (12.1%) were the highest. More than half of EPs (77.6%) did not have a family physician or GP for themselves. Only 15.5% and 10.3% have consulted their family physician/GP, and psychiatrist respectively in the past 12 months.

**Conclusion:** In summary though, EPs deemed themselves to be in a state of good health, a substantial proportion suffered from at least one medical condition, mostly psychiatric.

**Keywords:** emergency, physicians, Health, Bahrain, Salmaniya

### Introduction

Emergency medical services workers are at risk of experiencing mental, physical, and emotional stress every shift they work.<sup>[1]</sup> This contributes to elevated levels of stress which results in higher rates of suicide, job-related burnout, clinical depression, and physical conditions.<sup>[1]</sup> This is supported by other studies<sup>[1]</sup> which found that the rate of stress and mental problems is high among physicians.<sup>[2,3]</sup>

A published study conducted in 2021 to assess the level of burnout among emergency physicians (EP) in the Kingdom of Bahrain found that emergency physicians reported a prevalence rate of 81.0% for personal burnout, 69.8% for work-related burnout, and 40.5% for patient-related burnout.<sup>[4]</sup> Also, around 23.9% of emergency physicians were at high risk for illness. The study also found that higher personal, work-related, and patient-related burnout was associated with higher personal vulnerability, event load, and stress overload.<sup>[4]</sup> Studies found that rotating night shifts and heavy workloads contribute to unhealthy lifestyles like insufficient physical activity and poor diets, which are major risk factors for developing diabetes.<sup>[5]</sup>

The data on emergency doctors' physical health or their health maintenance behavior is lacking. [6] This research aims to gather more comprehensive information regarding the well-being of emergency physicians using a questionnaire-based assessment to evaluate the physical and psychological health of emergency doctors.

Given the limited data available on the overall health status of emergency physicians, this study was conducted to gain insights into EPs' well-being at Salmaniya Medical Complex (SMC).

This research is critical in understanding the impacts of demanding work schedules on doctors' health! In addition, the study aims to identify areas for improvement in the healthcare system related to emergency physicians' well-being.; Furthermore, the findings from this study will help in developing interventions to enhance the overall health of EPs. Additionally, the questionnaire-based assessment is designed to uncover underlying factors that may influence emergency physicians' health outcomes.

Ultimately, this study strives to make a significant contribution to the field of emergency medicine by shedding light on the intricate relationship between work demands and physical health.; It is imperative that healthcare institutions prioritize the well-being of their medical staff., regardless of their specialty.

### ***Aims and Objectives***

The study aims to assess the physical and psychological health of emergency physicians at SMC and to implement health strategies and guidelines targeting emergency physicians' physical and psychological health based on self-rated health status, reported medical conditions, and the number of days they were hospitalized and off work in the past year.

### **Materials and Methods**

#### ***Study Design***

Cross-sectional descriptive study with online data collection through an anonymous self-administered questionnaire.

#### ***Study Population***

The SMC emergency department database for 2024 revealed that a total of 78 doctors were registered in the emergency department at SMC. Out of the 78,60 physicians specialized employed emergency physicians including consultants, chief residents, senior residents, and junior residents while the remaining (18 physicians) were rotating from other medical specialties and departments. Sixty (60) emergency physicians were included in the study and the other 18 (non-emergency physicians) were excluded.

#### ***Sampling technique***

Inclusion criteria: All specialized employed physicians in the emergency department at SMC including consultants, chief residents, senior residents, and junior emergency doctors.

Exclusion criteria: physicians from other departments and specialties doing their clinical rotation and receiving training in the emergency.

Settings: Utilizing the Google Forms platform, electronic data collection was carried out over a period of 10 days, starting on the 9<sup>th</sup> of March 2024. Surveys were distributed via WhatsApp messenger to all emergency physicians employed at the SMC emergency department.

### **Tools**

A systematically self-administered anonymous questionnaire was utilized in the study. Survey questions were adapted from another study to serve the research purposes primarily (3). The questionnaire included 3 items (1) physician's demographic data; age, sex, marital status, nationality, job position, years of experience, and hours of work per week; (2) Emergency physicians' medical characteristics; general health status, whether they had their general practitioner (GP) or family physician if they have seen their GP, family physician or psychiatrist in the past 12 months if they have been hospitalized or off work days due to illness in the past 12 months (3) Emergency physicians' medical conditions within the last 5 years.

### **Outcomes**

The primary outcome of the study is to evaluate the physical and psychological health of EP at SMC and the prevalent medical conditions in this group.

### **Ethical consideration**

In adherence to the fundamental ethical principles, the study was conducted after obtaining consent from the participants and receiving approval from the ethical committee. The data collected was treated as confidential and analyzed anonymously.

### **Plan of analysis**

The characteristics of EPs expressed categorically were summarized in terms of frequencies and percentages. The continuous parameter age was summarized as median and inter-quartile range. The association of levels of various characteristics with the self-reported health status of EPs was tested statistically using the Chi-square test. Further, the association of healthcare-related parameters for the last 12 months and various characteristics was also tested using the Chi-square test. A risk of medical conditions associated with levels of different characteristics was determined using simple logistic regression. All the analyses were performed using SPSS version 26.0 (IBM Corp USA) software and the statistical significance was tested at a 5% level.

### **Results**

Fifty-eight (96.7%) of the included emergency physicians in the study responded and completed the survey questions. Table 1 summarizes the socio-demographic characteristics of the emergency physicians (EPs) who participated in the study. The majority i.e. 77.6% of the EPs were below 45, with a median age of 38 (IQR: 33-42.5) years. The male participation was higher (63.8%) as compared to females (36.2%). Most of the participants were married (72.4%) and the proportion of Bahrainis was higher

(82.8%) in the study. The distributions of EPs as regards job description and years of experience were almost uniform. Most of the EPs had working hours of 40-50 / week (72.4%).

**Table 1.** Emergency physicians' socio-demographic characteristics

Characteristic	Category	n	%	Median [IQR]
Age in years	25-34	18	31.0	38.00 [33.00, 42.50]
	35-44	27	46.6	
	45-54	6	10.3	
	55-64	5	8.6	
	> 65	2	3.4	
Gender	Male	37	63.8	
	Female	21	36.2	
Marital status	Single	15	25.9	
	Married	42	72.4	
	Divorced	1	1.7	
Nationality	Bahraini	48	82.8	
	Non-Bahraini	10	17.2	
Job description	Consultant	12	20.7	
	Chief resident	13	22.4	
	Senior resident	18	31.0	
	Junior Resident	15	25.9	
Experience in years	< 5	16	27.6	
	5-15	21	36.2	
	15-25	12	20.7	
	> 25	9	15.5	
Working hours/week	40-<50 hr/week	42	72.4	
	50-<60 hr/week	15	25.9	
	70->80 hr/week	1	1.7	

The association of health status, as reported by EPs, was stratified according to their characteristics (Table 2). Forty-eight percent (48.3%) of EPs reported good health status. The association of different characteristics with the health status showed a statistically non-significant association ( $p > 0.05$ ). Table 3 shows that only 13 (22.4%) EPs had their general practitioners (GPs) and 9 (69%) of them had seen their GPs in the last 12 months. Six EPs (10.3%) had visited a psychiatrist in the last 12 months, and 6 (10.3%) EPs were admitted to the hospital for some reason in the past 5 years. There were 37 (63.8%) EPs who had illness and were off work during the last 12 months. Characteristics like age, gender, marital status, nationality, and working hours per week did not show any association with the healthcare-related parameters of EPs. The proportion of junior residents and senior residents staying off work due to illness was significantly higher than that of chief residents and consultants, as indicated by a p-value of 0.020. Further, the proportion of EPs with 15 or more years of experience and having their GPs was

significantly lower than those EPs with lesser experience, as indicated by a p-value of 0.031.

**Table 2.** Emergency physicians' health status stratified by various characteristics.

Characteristic	Health status n (%)				Total	P-value*
	Excellent	Very good	Good	Moderate/Poor		
Overall	7(12%)	12(20.7%)	28(48.3%)	11(19%)		
<b>Age in years</b>						
< 45	6	10	22	7	45	0.628
>= 45	1	2	6	4	13	
<b>Gender</b>						
Male	5	7	15	10	37	0.165
Female	2	5	13	1	21	
<b>Marital status</b>						
Single	2	4	7	2	15	0.937
Married	5	8	21	9	43	
<b>Nationality</b>						
Bahraini	6	8	24	10	48	0.407
Non-Bahraini	1	4	4	1	10	
<b>Job description</b>						
Junior Resident	2	4	7	2	15	0.923
Senior resident	1	3	9	5	18	
Chief resident	2	3	7	1	13	
Consultant	2	2	5	3	12	
<b>Experience</b>						
< 5	2	5	8	1	16	0.562
5-15	3	4	9	5	21	
15-25	0	1	7	4	12	
> 25	2	2	4	1	9	
<b>Working hrs/week</b>						
<= 50	5	11	21	5	42	0.240
> 50	2	1	7	6	16	

\*Obtained using Chi-square test

**Table 3:** Emergency physician's past 12 months status according to their characteristics

Characteristic	Has his/her own GP?	Has seen his/her GP in the past 12 months?	Has seen a psychiatrist in the past 12 months?	Have you been hospitalized in the past 12 months?	Have you been off work due to illness in the past 12 months?

Age in years					
< 45	10	7	5	4	27
>= 45	3	2	1	2	10
P-value*	0.948	0.988	0.721	0.498	0.263
Gender					
Male	9	4	3	3	22
Female	4	5	3	3	15
P-value*	0.643	0.189	0.458	0.458	0.362
Marital status					
Single	3	3	3	0	10
Married	10	6	3	6	27
P-value*	0.824	0.794	0.352	0.28	0.403
Nationality					
Bahraini	12	8	5	6	32
Non-Bahraini	1	1	1	0	5
P-value*	0.301	0.596	0.969	0.238	0.318
Job description					
Junior Resident	6	4	3	2	11
Senior resident	3	3	1	2	15
Chief resident	2	1	2	1	4
Consultant	2	1	0	1	7
P-value*	0.307	0.472	0.297	0.959	<b>0.020</b>
Experience					
< 5	6	4	3	3	12
5-15	3	1	1	1	11
15-25	0	1	2	0	3
>25	4	3	0	2	3
P-value*	<b>0.031</b>	0.133	0.323	0.197	0.269
Working hrs/week					
<= 50	10	6	5	5	25
> 50	3	3	1	1	12
P-value*	0.824	0.794	0.801	0.801	0.150

\*Obtained using Chi-square test

The medical condition of EPs in the last 12 months is given in Table 4. Burnout was reported by the majority i.e. 25 (43.1%) participants, followed by anxiety by 14 (24.1%), and depression by 10 (17.2%) participants. Dyslipidemia and obesity were reported by 8 (13.8%) of the EPs, and 7 (12.1%) each reported diabetes and hypertension. Other conditions were reported by less than 10% of the participants. Overall, there were 42 (72.4%) EPs with at least one medical condition, while 25 (43.1%) had more than one medical condition.

**Table 4:** Emergency physicians' medical conditions within the last 12 months

Medical condition	n	%

Burnout	25	43.1
Anxiety	14	24.1
Depression	10	17.2
Dyslipidemia	8	13.8
Obesity	8	13.8
Diabetes	7	12.1
Hypertension	7	12.1
Hypothyroidism	3	5.2
Bronchial asthma	2	3.4
Migraine	2	3.4
Backache	1	1.7
Chronic serous chorio retinopathy	1	1.7
COPD	1	1.7
Multiple sclerosis	1	1.7
Subclinical hypothyroidism	1	1.7
At least one medical condition	42	72.4
More than one medical condition	25	43.1

The risk of three major medical conditions i.e. burnout, anxiety, depression, and their associated risk factors were determined as shown in Table 5. As regards burnout, the odds were higher for older EPs (> 45 years) [OR: 1.17 (95% CI: 0.34, 4.05)], those married [OR: 1.74 (95% CI:0.51, 5.95)], although statistically not significant. The odds of burnout were significantly lower for non-Bahrainis as compared to Bahrainis [OR: 0.11 (95% CI:0.01, 0.95)] with a p-value of 0.044. The odds were higher for senior residents, chief residents, and consultants as compared to junior residents, although not significant. Further, those with higher years of experience had increased odds of burnout as compared to those with less than 5 years of experience. For the 5-15 years category, the odds [OR: 5.79 (95% CI:1.26, 26.53)] were significantly higher with a p-value of 0.024. For anxiety, marital status showed increased odds [OR: 2.52 (95% CI:0.49, 12.86)] as compared to single status, although the effect was statistically not significant. The consultants showed a reduced level of anxiety [OR: 0.25 (95% CI:0.02, 2.61)] as compared to residents, although the effect was statistically not significant. The depression was more in EPs with age > 45 years [OR: 1.63 (95% CI:0.36, 7.46)], males [OR: 1.40 (95% CI:0.32, 6.11)], married EPs [OR: 1.49 (95% CI:0.28, 7.93)] and non-Bahraini's [OR: 1.25 (95% CI:0.22, 7.02)]. However, none of the effects were statistically significant. Depression was greater in EPs working for more than 50 hours per week [OR: 3.36 (95% CI:0.82, 13.78)], although not significant.

**Table 5:** Risk of medical conditions associated with different characteristics.

Characteristics	Level	Medical condition - OR [95% CI]; P-value		
		Burnout [N=25]	Anxiety [N=14]	Depression [N=10]
Age in years	<= 45	1.00	1.00	1.00
	> 45	1.17 [0.34, 4.05]; 0.801	0.93 [0.22, 3.98]; 0.919	1.63 [0.36, 7.46]; 0.530
Gender	Female	1.00	1.00	1.00

	Male	0.75 [0.26, 2.21]; 0.601	0.69 [0.20, 2.36]; 0.553	1.40 [0.32, 6.11]; 0.654
Marital status	Single	1.00	1.00	1.00
	Married	1.74 [0.51, 5.95]; 0.378	2.52 [0.49, 12.86]; 0.268	1.49 [0.28, 7.93]; 0.643
Nationality	Bahraini	1.00	1.00	1.00
	Non-Bahraini	0.11 [0.01, 0.95]; <b>0.044</b>	1.44 [0.32, 6.53]; 0.635	1.25 [0.22, 7.02]; 0.800
Job description	Resident	1.00	1.00	1.00
	Senior resident	2.00 [0.48, 8.24]; 0.337	0.78 [0.16, 3.87]; 0.786	-
	Chief resident	1.71 [0.37, 7.92]; 0.490	1.72 [0.35, 8.51]; 0.507	1.72 [0.35, 8.51]; 0.507
	Consultant	1.43 [0.29, 6.87]; 0.656	0.25 [0.02, 2.61]; 0.247	0.25 [0.02, 2.61]; 0.247
	Experience in years	< 5	1.00	1.00
	5-15	5.79 [1.26, 26.53]; <b>0.024</b>	1.73 [0.36, 8.35]; 0.493	1.02 [0.19, 5.37]; 0.982
	15-25	4.33 [0.79, 23.48]; 0.089	1.44 [0.24, 8.84]; 0.691	0.87 [0.12, 6.22]; 0.887
	>25	3.47 [0.56, 21.35]; 0.180	1.24 [0.17, 9.25]; 0.835	0.54 [0.05, 6.14]; 0.621
Working hours/week	<= 50	1.00	1.00	1.00
	> 50	2.09 [0.65, 6.72]; 0.216	1.07 [0.28, 4.06]; 0.925	3.36 [0.82, 13.78]; 0.092

## Discussion

Nearly eighty-one (81%) percent of the EPs reported good to excellent health status. There were no significant differences by age, gender, marital status, nationality, job description, experience, or working hours per week. There are no studies done to evaluate the self-perceived health status of emergency physicians in specific and to compare the study findings. However, a study which was a Swiss study found that 94% of primary care physicians considered themselves in good or very good health.<sup>[3]</sup> A Norwegian study reported that the self-perceived health status of physicians was frequently better than that of the general population.<sup>[7]</sup> The fact that more than half of EPs (77.6%) did not have a family physician or GP for themselves was expected considering previously similar published studies.<sup>[3]</sup> A study found that 32.8% of the physicians used the advice of primary care physicians.<sup>[8]</sup> EPs with less experience and having their own GP or family physician were statistically significant and considerably higher than those EPs with more experience (p-value of 0.031). This finding might be explained by the fact that physicians often delay getting help when they first notice illness. The explanations for such delay could be due to refusing to appear weak or as if they are dramatizing. Also, it could be because they want to avoid bothering their colleagues. It has been found that some physicians don't consider self-care as a priority.<sup>[9]</sup> In addition, this could be because physicians may feel a stigma about reporting illnesses and the fear that others will doubt their competency.<sup>[3]</sup>



The higher percentage of junior residents and senior residents staying off work due to illness when compared to chief residents and consultants (p-value of 0.020), is like other studies which found that senior physicians required sick leave at a significantly higher rate.<sup>[8]</sup>

Although 81% of EPs reported good to excellent health status, 10.3% of EPs had visited a psychiatrist in the past 12 months. Studies found that the prevalence of frequent mental disorders among physicians varied from 6% for burnout to 42% for work-related fatigue. [10]

Burnout was reported by 43.1% of EPs and was significantly lower for non-Bahrainians as compared to Bahrainis (p-value of 0.044). Also, it was significantly higher in the group of EPs with work experience of 5-15 years (p-value of 0.024). It is important to observe that the prevalence of burnout amongst medical practitioners, as indicated by the Medscape National Physician Burnout and Suicide Report, demonstrated an upward trend, rising from 39.8% in 2013 to 46.0% in 2015, before registering at 43% in 2020.<sup>[8]</sup> This may be because the medical specialty is characterized by a profound sense of responsibility toward health and human life. It involves continuous stress and pressures associated with executing tasks within designated deadlines<sup>[8]</sup>. physicians in this field are subjected to a myriad of specific factors, such as intense emotions and stress, daily encounters with mortality, an acknowledgment of the limitations of their knowledge, organizational and working conditions, interpersonal conflicts, and legal liabilities.<sup>[8]</sup> In extreme circumstances, prolonged exposure to stressful conditions at work, chronic physical exhaustion, and personal health issues may contribute to the incidence of occupational burnout, which is defined as a significant reduction in work engagement.<sup>[8]</sup>

In a study of emergency physicians in Bahrain, the prevalence rate of burnout was 81.0%, personal was 69.8%, work-related was 40.5%, and patient-related was 40.5%. About 23.9 % of EPs had a high risk of illness. Women, Bahraini nationals, Chief Resident/Consultant, working more than 50 hours per week, and taking at least 1 sick leave per year were all associated with higher burnout/stress levels. Workplace violence and sleep disturbances were also associated with higher levels of burnout/stress.<sup>[4]</sup>

Depression was reported by 17.2% of participants and was more in EPs working for more than 50 hours per week and the anxiety in residents when compared with consultants. The number is lower when compared with a meta-analysis of 31 cross-sectional (9447) and 23 longitudinal (8113) studies, which showed the prevalence of depression (or depressive symptoms) among medical doctors was 28.8 percent (95% CI: 25.3–32.5 percent).<sup>[8]</sup> The prevalence of depression among EPs is higher than the prevalence in public(12.7 percent) as per the national Bahrain health survey which was done in 2019.<sup>[12]</sup>

In terms of the reported physical medical conditions, dyslipidemia and obesity were reported by 8 (13.8%) of EPs. Also,7 (12.1%) reported diabetes and hypertension. Surprisingly, 72.4% of EPs had one medical condition, and 43.1% had more than one medical condition in the past 5 years. When compared with other studies, a Malaysian study found that the prevalence of hypertension among physicians was 13% in 2019. Also, another study done in Saudia Arabia in 2013 concluded that the prevalence of hypertension was 28% among this group.<sup>[12]</sup> Also, a study was conducted in Taiwan to

determine how common chronic diseases are among physicians and how likely they are to develop them compared to the general population. The results showed that physicians had a higher chance of developing hypertension (OR = 1.21 = 95% CI).<sup>[13]</sup> A study was conducted to evaluate the health status of medical doctors on board the Silesian voivode ship, including the incidence of chronic diseases. The results showed that the majority of the surveyed doctors (68.5%) were affected by chronic diseases, with obesity accounting for 68.3% of the total, hypertension accounting for 33.8%, and dyslipidemia accounting for 27.1%.<sup>[8]</sup> The prevalence of obesity among EPs(13.8%) is lower than the prevalence in the public(39.5%).<sup>[14]</sup> However, the prevalence of diabetes among EPs (12.1%) is close to the prevalence in the public as per a CDC report in 2021, which revealed that 11.300 % of Bahraini adults are diabetic.<sup>[15]</sup> Extended work hours for doctors may result in the adoption of unhealthy practices like smoking, alcohol consumption, drug misuse, poor eating habits, and lack of physical activity, which could have adverse effects on their health.<sup>[8]</sup>

## Conclusion

The study revealed that emergency physicians (EPs) generally perceived themselves as being in good health. However, a significant portion experienced psychiatric (burnout and anxiety) and/or physical conditions (primarily dyslipidemia) conditions. These findings could be instrumental in developing tailored health interventions for EPs, emphasizing the importance of regular family physician, GP, and psychiatrist visits. Further research is warranted to validate these findings across different settings and delve into other health-related aspects, particularly those of preventive care. Since there a few studies in these contexts, future studies with a big sample size should be conducted to explore the health status of emergency physicians, contributing factors, and prevalence of medical conditions among this group.

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