



An exploration of burnout and resilience among emergency physicians at three teaching hospitals in the English-speaking Caribbean: A cross-sectional survey

Lynn-Marie P. Lovell,^{a*} Anique E.N. Atherley,^b Harold R. Watson,^a and Reginald DaC. King^a

^aEmergency Medicine, Queen Elizabeth Hospital; Faculty of Medical Sciences, University of the West Indies, Cave Hill Campus, Barbados

^bAcademy of Teaching and Learning, Academic Learning Environment, Ross University School of Medicine, Barbados

Summary

Background Burnout is common among doctors working in emergency departments. It has significant consequences and is multifactorial. Self-care and resilience tendencies may contribute to being burnt out, or not. This study explores burnout and resilience amongst physicians working in Caribbean emergency departments.

Methods Data were collected from 111 participants using the Maslach Burnout Inventory (MBI) and the Resilience Scale-14 (RS14) as measures of burnout and resilience, respectively. Questions collected data on participant demographics and characteristics related to self-care. The associations between demographic characteristics and total burnout and resilience scales were explored.

Findings Among participants, 88.6% had medium to high range emotional exhaustion, 82.8% exhibited medium to high range depersonalization, and 19.6% had low to medium range personal accomplishment. Participants in Barbados had higher emotional exhaustion and depersonalization scores ($p=0.009$), and those in a postgraduate programme had higher depersonalization scores ($p=0.047$). The mean RS-14 score was 81.1 out of a maximum of 98.0 with a standard deviation of 13.1 and a range of 26 to 98. Depression correlated with high emotional exhaustion scores ($p=0.004$) and low resilience scores ($p<0.0001$). Emotional exhaustion scores increased among participants using alcohol daily ($p=0.01$), using recreational drugs ($p=0.021$) and sleeping aids ($p=0.028$).

Interpretation High burnout, despite high resilience, is present in this sample of physicians working in emergency departments of teaching hospitals in the Caribbean. Although resilience scores were high, those with lower resilience tendencies had poorer self-care habits.

Funding No external funding.

Copyright © 2022 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Keywords: Burnout; Resilience; Emergency physicians; Caribbean emergency rooms; Self care

Introduction

Physician burnout is of growing concern; physicians are 15 times more likely than other professionals to suffer from burnout.¹ Burnout can occur in people who work in emotionally demanding jobs^{2,3}; including physicians. Emergency physicians (EP) are a high-risk group for burnout syndrome, which is mainly due to their

exposure to excessive workloads and high demands for care.⁴⁻⁹ Burnout consists of three factors: emotional exhaustion (EE), depersonalization (DP) and reduced personal accomplishment (PA). The emergency environment seems to increase EPs' susceptibility to developing burnout with contributory environmental factors including: shiftwork, high patient volume, overcrowding in the emergency room, critical decision making based on incomplete information, repeated exposure to traumatic events and litigation concerns.^{10,11} Further, EPs are often required to make transitions between patients without the benefit of time to mentally debrief.

Corresponding author at: Dr. Lynn-Marie Lovell Queen Elizabeth Hospital, Barbados.

E-mail address: lynnmarie.lovell.bb@gmail.com (L.-M.P. Lovell).

The Lancet Regional Health - Americas

2022;15: 100357

Published online 27

August 2022

[https://doi.org/10.1016/j.](https://doi.org/10.1016/j.iana.2022.100357)

[iana.2022.100357](https://doi.org/10.1016/j.iana.2022.100357)

Research in context

Evidence before this study

The period of study preceded the COVID-19 pandemic. Even then, physicians were 15 times more likely than other professionals to suffer from burnout. Emergency physicians (EP) are a high-risk group for burnout syndrome. It consists of three factors: emotional exhaustion (EE), depersonalization (DP) and reduced personal accomplishment (PA). Physicians with burnout have increased coronary artery disease, peptic ulcer disease, drug abuse, and sleep disturbances. Mental effects include post-traumatic stress disorder and higher rates of suicidal ideation. Risks extend to the patients they treat because of increased risk of error.

Importantly, physicians in emergency medicine have higher burnout and lower average personal accomplishment compared to other specialties. The prospective '2017 National Emergency Medicine Resident Wellness Survey' conducted in the United States of America (USA) reported a high prevalence of burnout among residents and highlighted that burnout in emergency medicine physicians starts during early residency training.

A physician's capability to 'bounce back' is essential and this is the hallmark of resilience. In the United States, there is recognition of the increased likelihood of burnout in physicians who lack resilience and negative self-views and unhealthy lifestyle habits have been correlated to the presence of burnout.

Few studies have focused on emergency physicians regarding burnout and resilience; further, published data is inconsistent likely due to system differences. In a meta-analysis, 17 studies investigated burnout in 1943 participants, and only one of these was from the Caribbean.

Added value of this study

In this article, burnout and resilience are investigated in a seldom-explored geographical area, among emergency physicians at three centres in the Caribbean. The results showed that 88.6% had medium to high range emotional exhaustion; 82.8% exhibited medium to high range depersonalization, and 19.6% had low to medium range personal accomplishment. Depression correlated with high emotional exhaustion scores and low resilience scores. Emotional exhaustion scores increased among participants using alcohol daily, using recreational drugs and sleeping aids.

Implications of all the available evidence

High burnout is present in this sample of physicians working in emergency departments of teaching hospitals in the Caribbean. Resilience levels are high but those with lower resilience tendencies had poorer self-care habits. These findings should prompt further qualitative studies on the influencers of burnout in this population, as well as promote changes at both individual and organizational levels, to reduce burnout symptoms and promote quality of work life among ED physicians.

Further still, as several patients present critically ill and are thereby referred to other specialities, the EP is often then denied the job reward of seeing improvement in illnesses and cures.⁷ Physician burnout has been explored worldwide.¹²

The consequences of burnout on the physician include diminished patient care, increased medical errors, and threats to physician health (e.g. coronary artery disease, peptic ulcer disease, sleep disturbance and psychological disturbance).^{2,13-17} Medical professionals struggle with mental wellness and burnout often is evident from training during medical school. Medical students in Trinidad have shown significant burnout levels with 52% of respondents being burnt out and 40% having depressive symptoms.¹⁸ This is in keeping with a meta-analysis of 12 studies of burnout among medical students which listed burnout levels as high as 75.2%, citing the demanding nature and excessive workloads as factors, similarly to EPs.^{19,20} In the Bahamas, Bain showed that 55.7% and 9.9% of 153 physicians had moderate and high levels of burnout respectively.²¹ Amongst 5126 Dutch medical residents, 20.5% of those who were burnt out were suicidal versus 7.6% of those who were not burnt out.²² The prevalence of burnout in the United States is 76.1% among residents (n=1,522; 21.1% of all US emergency medicine residents);⁵ this report further noted that burnout in the emergency medicine physicians could start early in residency training.⁵

Importantly, physicians in emergency medicine in countries including the United States, France and Australasia reported higher burnout and lower average personal accomplishment compared to other specialties.^{4,6,23-26} A recent study done in France found that one EP out of two was suffering from burnout (50.7%).²⁷ In a study of 1924 French physicians, 51.5% of EPs were burnt out compared to 42.4% of the rest of the physician population; intent to leave the job was also higher in EPs.²⁴ Importantly, burnout seems to increase over time across specialities and, among EPs in the United States of America, increased from 65% in 2011 to 70% in 2014.²⁵ Emergency Medicine burnout rates remained relatively high in 2020 at 43%.²⁸ Some institutions have tried to address burnout with varied success through interventions targeting individuals, groups and the organizations. Burnout not only has detrimental effects on the physician but compromises patient care. Investigating the level and predictors of burnout can lead to informed measures, which may be taken to optimize physician well-being. For example, resilience is suggested as one way to mitigate burnout.⁹ A physician's capability to 'bounce back' is essential and this is the hallmark of resilience; typically described as a response to a negative event.²⁹ Some authors also cite resilience as a capacity rather than an outcome of a negative event, reflecting skills and resources used by an individual in response to stressors.³⁰ It may also be

seen as a triad of self-care, values and insight and is a concept that can be taught and cultivated.^{31,32} In the United States, there is recognition of the increased likelihood of burnout in physicians who lack resilience and among those with multiple roles, including involvement in clinical academics.³³ Importantly, the association between burnout and resilience should not imply causation in either direction.

Elements proposed for increasing resilience are adaptations of 1) attitudes and perspectives 2) balance and prioritisation 3) practice management scale 4) supportive relations.³⁴ The last two of these highlight the multisystemic facet of resilience where several factors interplay within an ecosystem including organisations and team systems.³⁰ Given that resilience is not a trait, but rather a skill that can be fostered, it is important that organisations create resources to support employees, especially within ever-changing healthcare systems where individual adaptivity and resilience may also change. Some cited ways in which organisations may play a negative role in resilience capacity includes conflicts in workload and values, lack of effective communication and lack of opportunities for development.³⁰

Thus far, few studies have focused on emergency physicians regarding burnout and resilience;³⁵ further, published data is inconsistent likely due to system differences. In a meta-analysis of 17 studies investigating burnout in 1943 participants, only one of these was from the Caribbean.³⁵ This study was conducted in Jamaica among 30 emergency physicians and showed 50% of participants scoring highly on emotional exhaustion using the Maslach Burnout Inventory.³⁶ In this article, we investigate burnout and resilience in a seldom-explored geographical area, among emergency physicians at three centres in the Caribbean. This multicenter study will be important as burnout interventions should be tailored to one's population and the healthcare system.

Methodology

Study design

This was a multicenter, quantitative cross-sectional survey to explore and examine the prevalence of physician burnout and resilience among EPs at University of the West Indies (UWI) teaching hospitals in The Bahamas, Barbados and Trinidad.

Study setting

This study was conducted in three English-speaking Caribbean territories— Barbados, The Bahamas and Trinidad and Tobago obtaining participants from one teaching hospital in each country, Princess Margaret Hospital (PMH), Queen Elizabeth Hospital (QEH) and Eric Williams Medical Sciences Complex (EWMS) respectively. The QEH, in Barbados, accounts for more than 90% of Emergency Department visits; PMH, in

the Bahamas, accounts for more than 90% of emergency visits and the EWMS complex, in Trinidad, accounts for more than 85% of visits within the North Central Regional Authority and 15% of all emergency department visits in Trinidad. In figures, this translates to approximately 45,000, 71,000 and 120,000 patients seen annually in each respective territory and institution.^{37–39} The Queen Elizabeth Hospital is the sole public, tertiary hospital in Barbados and staff work eight-hour shifts of six days on and two days off. The other mentioned emergency departments typically work four-to-five-day work weeks with three days off. All three territories were British colonies and hence, the healthcare system mirrors that of the British National Health Service, with these institutions being government funded and available to the public free at the point of service.

Sampling size, frame and approach

We recruited emergency physicians in this study with the definition of 'emergency physicians' as any doctors working in a given emergency department for more than six months. There were 176 EPs invited to participate, which represents the total number of EPs working in the selected emergency departments. We calculated the minimum sample size to be 121 emergency physicians based on a 95% confidence interval and a 5% margin of error. P is the true proportion, which in this case is unknown, and thus we use 0.50. The minimum sample size was increased by 10% to account for incomplete questionnaires leading to the desired sample of 133 participants.

Study procedures

We collected data from willing participants between August 1, 2016, to December 31, 2016, using self-administered questionnaires distributed in person by trained research assistants. These were securely shipped via FedEx to the overseas territories. Participants were recruited at departmental meetings and conferences by the research assistants, at which time they were given participant information sheets to read and told about the aims of the study. Those who agreed to participate then completed a questionnaire comprising of demographics, a de novo health questionnaire, the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) and the Resilience Scale-14 (RS-14).^{40,41}

Instrument

The questionnaire had four sections: demographics, health questions, burnout scale and resilience scale.

We asked 10 questions exploring participants' demographic characteristics and nine regarding personal health practices. Demographic questions included sex, gender, marital status and if participants had children. With respect to their jobs, participants were asked about the length of time and respective posts as well as questions related to enrollment in an Emergency Medicine

post-graduate program. Health questions were on general health perception, frequency of depressed feelings, habits and use of substances.

The MBI-HSS is a validated 22-item questionnaire with a seven-point scale for responses ranging from 'never' to 'every day' and was designed for professions which come into contact with other people.⁴⁰ This is the leading measure of burnout and can be subdivided into three scales: EE (9 items), DP (5 items) and PA (8 items) which are scored on a seven-point frequency scale ranging from never to daily. Each subset is measured independently to determine the burnout score given that each scale is weighted differently. Scoring higher in EE and DP are suggestive of burnout, with low PA. Three questions are included in supplementary materials as per the copyright agreement. Studies support the three-factor structure and internal reliability with a Cronbach's coefficient alpha of 0.87 for MBI-HSS with 0.85, 0.80 and 0.75 for the EE, DP and PA subscales respectively.^{26,40} The Cronbach coefficient of the subscales in this study were 0.9, 0.8, and 0.8 respectively; this showed good internal reliability with a similar Caribbean population which had one of 0.77.¹⁸

The Resilience Scale-14 (RS-14) was shown to have one of the best psychometric ratings on reviewing resilience scales and is best applied in stressful settings.⁴¹ It is a validated 14-question questionnaire based on a seven-point scale ranging from strongly disagree to strongly agree and has been included in the supplementary materials. Scores range from 1 (strongly disagree) to 7 (strongly agree); the sum score range from 14 to 98. Higher scores indicate stronger resilience. Total resilience was subcategorized into six categories: very low (14-56), low (57-64), on the low end (65-73), moderate (74-81), moderately high (82-90) and high resilience (91-98). These categories are as detailed in the user's guide for RS-14.⁴¹ In this study, this scale had high internal reliability (Cronbach's alpha = 0.94).

Data analysis

The questionnaire was entered into a spreadsheet to create a database and then exported into Stata[®] (StataCorp LP, College Station, TX, USA). Data were cleaned to ensure consistency of response; we searched for data outliers and did double data entry on 20% of responses with no errors found. Data were analyzed using Stata version 13.0 for Mac (StataCorp LP, College Station, TX, USA). P values of <0.05 were considered to be statistically significant and we used the Kolmogorov-Smirnov test of normality.

Descriptive statistics were used to investigate the characteristics of participants in this study by exploring the frequency of responses to demographic characteristics and health questions. A total burnout score was generated for each subscale of the MBI—emotional exhaustion, depersonalization, and personal

accomplishment. Frequencies of responses on the Likert scale were generated for all 22 items of the MBI. MBI scores were categorized into low, moderate, and high burnout for each subscale. For emotional exhaustion, low, moderate, and high burnout were determined if scores were less than 17, between 17-27, and over 27 respectively. For depersonalization, low, moderate, and high burnout were determined if scores were less than 7, between 7-13, and over 13 respectively. For personal accomplishment, low, moderate and high burnout was determined if scores were more than 39, between 32-38, and less than 31 respectively.

A total resilience score was calculated from participants' responses to the 14-item resilience scale. We determined the association between demographic variables and burnout and resilience items using ANOVA for variables with more than three categories. If a statistically significant difference was found, Tukey post-hoc testing was used to determine differences between groups. T-testing was used to look for the association between MBI subscales and total resilience scores with demographic variables with two groups. Linear regression was used to assess the association between resilience scores and MBI sub-scales.

Ethical considerations

We obtained licenses to use, reproduce and administer the Maslach Burnout Inventory and Resilience-14 scales. Ethical approval was obtained from the Institutional Review Boards in The Bahamas, Barbados and Trinidad. Participants in the study completed an information sheet and consent form; anonymity was maintained as all questionnaires were collected in sealed envelopes. Completed surveys were kept in a locked drawer to which only the principal investigator and research assistants had access. There was no external funding source.

Role of the funding source

This work did not receive any external funding.

Results

A total of 111 emergency physicians participated in this study yielding a response rate of 63%. [Table 1](#) shows the number of participants from each country involved and other demographic characteristics. The territories were almost equal in response with 37 participants taken from the Bahamas, 35 from Barbados and 39 from Trinidad. [Table 2](#) shows the frequencies of responses to self-care habit questions. Almost 40% of participants felt depressed sometimes in the previous two weeks, most participants (53.5%) rated their general health as at least very good, many participants felt they were at their ideal body weight, some exercised most days and ate a healthy diet. However, most participants consumed some alcohol most days, only 2 used recreational drugs and over 10% used pharmaceuticals to sleep.

Variables	N (%)	EE (M±SD)	(p)	DP (M±SD)	(p)	PA (M±SD)	p
Countries							
Barbados	34 (32)	36.1 (12.6)	0.009	14.5 (7.7)	0.044	41.7 (7.8)	0.041
The Bahamas	36 (33)	27.7 (11.5)		10.7 (4.7)		46.1 (6.8)	
Trinidad	36 (35)	29.8 (10.4)		12.4 (6.3)		44.9 (7.1)	
Gender							
Male	49 (44)	29.4 (11.7)	0.96	11.8 (5.7)	0.32	45.5 (8.0)	0.15
Female	62 (56)	32.5 (12.1)		13.0 (6.7)		43.4 (6.8)	
Age group (years)							
20-29	19 (18)	31.7 (11.9)	0.61	13.9 (7.8)	0.07	44.2 (7.5)	0.18
30-39	53 (50)	32.5 (11.6)		13.9 (6.4)		43.3 (7.4)	
40-49	27 (25)	28.4 (13.3)		10.3 (5.5)		47.2 (5.1)	
50+	8(6)	27.8(8.3)		8.4 (2.9)		41.8 (10.6)	
Marital Status							
Married	55 (49)	30.2 (11.6)		11.2 (5.2)	0.24	44.1 (6.8)	
Divorced	4 (4)	29.8 (3.5)		9.5 (5.3)		51.8 (1.8)	
Never married/single	52 (47)	32.2 (12.8)	0.88	14.0 (7.4)		44.0 (8.0)	0.99
Have children							
Yes	56 (50.5)	30.4 (12.2)		11.4 (5.9)		44.6 (7.1)	
No	55 (49.5)	31.9 (11.8)	0.63	13.6 (6.8)	0.16	44.0 (7.7)	0.56
Work experience in ED (yrs)							
0-2 years	2 (2)	31.2 (11.2)		12.1 (6.0)		44.1 (7.6)	
2-4 years	14 (13)	30.1 (12.6)		12.1 (6.3)		45.2 (7.1)	
>4 years	11 (10)	35.1 (10.9)	0.37	14.9 (7.9)	0.33	41.2 (7.7)	0.19
Job title							
Senior House Officer	62 (56)	30.7 (11.4)		12.7 (6.6)		44.6 (7.2)	
Registrar	5 (4)	34.8 (10.9)		14.1 (5.5)		40.8 (8.3)	
Senior Registrar	12 (11)	34.8 (13.5)		13.4 (9.0)		45.8 (5.6)	
Consultant	17 (15)	25.9 (12.7)	0.09	8.9 (3.3)	0.08	46.0 (7.6)	0.14
Postgraduate programme							
Yes	32 (28.8)	32.7 (12.7)		14.3 (6.9)		42.2 (8.1)	
No	79 (71.2)	30.4 (11.7)	0.37	11.7 (6.1)	0.047	45.1 (7.0)	0.06
Hours per week							
<40 hours	30 (27.0)	29.3 (12.3)		10.5 (6.6)		44.4 (7.8)	
>40 hours	77 (69.4)	32.2 (12.0)	0.29	13.1 (6.6)	0.046	44.4 (7.3)	0.99

Table 1: Demographic characteristics and differences in MBI emotional exhaustion, depersonalization, and personal achievement among a sample of 111 emergency physicians from Barbados, The Bahamas and Trinidad.

Burnout

Analysis of MBI categories shown in Table 3 showed that 88.6%, 82.8% and 19.6% had medium to high range EE and DP and low to medium range PA respectively. Table 1 demonstrates how the subscale responses related to the demographic characteristics.

Emotional exhaustion. The mean EE score was 31.1 (±11.9) out of 63 with a range of 10 to 58. As shown in Table 1, participants in Barbados had statistically significantly higher scores for EE when compared to those in the Bahamas (36.1 ± 12.6 vs. 27.7 ± 11.5; p=0.006). There was no difference in EE between sexes, age, marital status, being a parent, or being in a postgraduate programme.

Depersonalization. The mean DP score was 12.5 (±6.5) out of 35 with a range of 5 to 31. Participants in Barbados had statistically higher DP scores when compared to those in The Bahamas (14.5 ± 7.7 vs 10.7 ± 4.7; p=0.04). Participants in a postgraduate programme had higher DP scores than those not in a programme (14.3 ± 6.9 vs 11.7 ± 6.1; p=0.047). Working over 40 hours a week was associated with higher depersonalization (10.5 vs 13.1; p=0.046). There was no difference in DP scores between sexes, age categories, being a parent, or marital status. These results are shown in Table 1.

Personal accomplishment. The mean PA score was 44.3 (±7.4) out of 56 with a range of 21 to 55. Participants in Barbados had statistically higher PA scores

	Never	Sometimes	Frequently	All the time	
I have felt depressed in the past two weeks	54 (48.2)	44 (39.3)	8 (7.1)	3 (2.7)	
	Excellent	Very good	Good	Fair	Poor
I rate my health as generally:	24 (21.4)	36 (32.1)	35 (31.3)	12 (10.7)	3 (2.7)
	Mean score between 1 and 7 (SD)				
I am at my ideal body weight (+/- 5 pounds)	3.9 (2.2)				
I exercise 30 minutes or more most days	3.6 (2.2)				
I eat a healthy diet most days	3.9 (1.9)				
I use tobacco products (smoke/chew)	1.3 (1.1)				
I have few or no alcoholic drinks (female 1/day, male 2/day)	3.1 (2.5)				
I use recreational drugs?	1.1 (0.8)				
I take pharmaceuticals to help me sleep?	1.32 (1.1)				

Table 2: Responses to self-care habits and health questions shown as the mean and standard deviation.

when compared to those in The Bahamas (41.7 ± 7.8 vs ± 46.1 (6.8); $p=0.041$) as demonstrated in Table 1. There was no difference in PA scores between other demographic categories.

Relationships between subscales of the MBI. Higher EE scores were associated with higher DP ($p<0.0001$) and lower PA scores ($p<0.0001$). Higher DP scores had an association with lower PA scores ($p=0.001$).

Resilience

The mean total resilience was $81.4 (\pm 13.1)$ with a range of 26 to 98. Detailed findings are shown in Table 4 with the total resilience subcategorized. Participants from Barbados had the lowest resilience scores as compared

	Low N (%)	Level	
		Medium N (%)	High N (%)
Emotional Exhaustion	12 (11.3)	28 (26.3)	66 (62.3)
Depersonalization	19 (17.1)	48 (43.2)	44 (39.6)
Personal Accomplishment	4 (3.7)	16 (15.9)	86 (80.4)

Table 3: Percentage of sample falling into low, medium and high range for MBI subscales.

Resilience level ranges	N (%)
Very low	3(2.8)
Low	8 (7.5)
On the low end	12(11.2)
Moderate	21(19.6)
Moderately-high	37(34.6)
High	26(24.3)

Table 4: Resilience level ranges and corresponding respondents by number and percentage falling into each category.

to the Bahamas and Trinidad but this difference did not reach statistical significance (76.9 (14.7), 83.3 (13.8), 83.8 (10.3) respectively, $p=0.069$). Total resilience scores were not associated with changes in any demographics measured. Table 5 shows the regression results with resilience. Higher EE scores ($p<0.0001$) and higher DP scores ($p=0.002$) were associated with lower resilience scores while higher PA scores ($p<0.0001$) were associated with higher resilience scores [(3.95) $=21.341$, $p<0.001$, $R^2=0.402$].

Associations of self-care and health questions with burnout and resilience

Persons who recently felt depressed and ate unhealthily had lower resilience scores than those who did not ($p<0.0001$, $p=0.026$ respectively). Higher emotional exhaustion scores were seen in those who recently felt depressed ($p=0.004$), those who had more than 1-2 alcoholic drinks per day ($p=0.001$), and those who used recreational drugs (0.021) or used sleeping aids ($p=0.028$). Higher depersonalization scores were seen in those who were recently depressed ($p=0.049$), had more than 1-2 alcoholic drinks per day ($p=0.001$) or used sleeping aids ($p=0.034$). Lower personal accomplishment scores were seen in those who rated their health as poorer ($p=0.01$), exercised less than 30 minutes a day ($p=0.006$) or used recreational drugs ($p=0.047$).

Discussion

This is the first multi-centre study exploring burnout among a Caribbean population of physicians working in emergency departments (ED). The results showed that 88.6% and 82.8% of emergency physicians had medium to high range emotional exhaustion and depersonalization scores respectively. Further one-fifth of doctors had low to medium range personal accomplishment scores. We also found that 40% of participants felt depressed in the two weeks prior to the data

	Beta	t	Sig	95% Confidence interval for B	
				Lower bound	Upper bound
<i>Emotional Exhaustion</i>	-0.358	-3.82	<0.001	-0.599	-0.189
<i>Depersonalisation</i>	-0.604	-3.18	0.002	-0.98	-0.227
<i>Personal Accomplishment</i>	1.068	7.488	<0.001	0.785	1.351

Table 5: Table showing relationship between resilience and MBI subscales.

collection and evidence of drug use. Lastly, resilience scores were high.

Of the three burnout aspects, EE and DP have been touted as being the most meaningful factors and once either of these is high then a person can be considered to be burnt-out.¹⁷ EE of the two of these has been the core.⁴² The levels of emotional exhaustion established in this study were in keeping with the 2014 study conducted among EPs at a teaching hospital in Jamaica where 70% of EPs showed moderate to high levels. However, the Caribbean population of EPs had low levels of depersonalisation, unlike this study.³⁶ Indeed the findings of this study suggest that EPs in Barbados have higher emotional exhaustion than those in the other territories. To further examine the reason for this would require further insight into the organizational structure of the different institutions to determine if there is a fundamental difference accounting for this.

From what is known of the EDs, EPs in Barbados work an average of 48 hours a week, not considering overtime. This is within an 8-day work cycle with six 8-hour days on and two days off. In Trinidad and Bahamas, the physicians studied worked five 8-hour days on and 3 days off. At times this varied to four 10-hour workdays with 3 days off. Other studies have shown a correlation between long working hours and higher emotional exhaustion levels.²⁵ This was not the case in our study where no association was established. Vacation and sick leave granted by the territories were the same, however, EPs in Trinidad and Bahamas had the added benefit of compassionate leave days. All territories have cited their EDs as being overcrowded with chronic bed blocks as a major issue. Physician extenders are rarely available.

In this study, those who were single and who did not have children did not have a positive association with EE. It has been past documented that those who are married and have children are less susceptible to the effects of burnout and have increased resilience.^{16,34,43} Family is thought to provide support and adds balance to the lives of physicians, allowing them to escape exhaustion.⁴³ This has been similarly reflected in other studies where having children reduced the incidence of burnout by 40%.^{4,44}

We found no statistically significant gender differences. Previous studies have shown that burnout prevalence is 20-60% higher in female physicians vs their

male counterparts, while another has touted the female gender as a predictor of burnout, particularly in those who work full time and have child care and domestic tasks.^{45,46} A 2020 study presenting results of the Physician Work Life Study revealed that perhaps it was the increased odds of reporting in females vs a higher prevalence; this was 1.6.⁴⁴ This study was done on 2326 US physicians with 32% of respondents being female. Our study done on Caribbean EPs revealed that being married and having children were protective against burnout as highlighted prior, in keeping with other studies.^{4,47} The findings of our study are not surprising. The Caribbean has always been a predominantly matriarchal society. Female workers have existed from the pre-colonial era and as far back as slavery and perhaps this has been a factor in work-life integration. Also, those of higher socio-economic status, including physicians, are able to obtain further assistance with domestic and child-care tasks, therefore mitigating burnout.

We found a positive association between DP and post-graduate programme enrolment. Perhaps, this is a response to the additional stressors of the post-graduate programme and may function as a coping mechanism. Bain et al found that the post-graduate year of study had a moderately strong correlation to burnout.²¹ In another study, first-year residents had burnout levels of 77.3%, compared to 50% of those in other years.⁴⁸

Typically, other studies showing burnout have demonstrated the classic pattern of high emotional exhaustion and depersonalisation with low personal accomplishment^{10,25,35,49}; however, this was not the case in this population of Caribbean EPs. This study showed that in spite of high levels of emotional exhaustion and depersonalization, physicians still preserved personal accomplishment. This pattern has been well-documented in other studies.^{6,7,11,14,43,50} These studies, taken from the United States, Romania, Canada and Israel, were all conducted among emergency physicians with burnout levels similar to those in this study.⁴ This was further reinforced in a large cross-sectional study of 15,243 EPs in China who also preserved their personal accomplishment despite other subscales being moderate to high.⁴⁷ Anecdotally, the Caribbean has always been seen as a proud region with a rich cultural history; this has extended to attaining independence and in some recent cases-republicanism. Within this context,

the medical profession is a well-respected one where physicians are revered. Therefore, in spite of resource limitations and other challenges experienced, there is still preserved accomplishment. This is also in the setting of achieving tertiary level and post-graduate education, which may not have been available to older Caribbean generations. This has added a further layer of pride. Personal accomplishment was markedly higher in the older age groups in this study. This may have been skewed due to the significantly high level of PA in the one participant more than 60 years of age. Despite this, evidence suggests that older physicians do have higher levels of personal accomplishment higher than their younger counterparts.¹⁷ This may be due to a presumably longer time in practice allowing for goal fulfilment and a sense of achievement. Having one physician over 60 years old is in keeping with the demographics of other EDs as the retirement age in the Caribbean ranges from 60-65 years and hence that physician would have been towards the end of their career.

The majority of respondents fell into the moderately-high and high ranges of resilience levels in this study. The resiliency of this Caribbean population is likely not limited to physicians. In a region with a colonial past of slavery and indentureship, through rebellions and riots towards freedom and rights, resilience has both been an outcome and capacity within our Caribbean states. This has remained evident even in our response to rebuilding post-natural disasters in the face of global climate change. Resilience has been suggested to act as a protective factor against burnout, yet several of the doctors sampled in this survey had at least one burnout symptom.^{2,51} High to medium range burnout in the setting of a highly resilient population were also the findings of McCain et al in a study of 283 Australian physicians.⁵² Despite having overall high resilience, this study shows that lower resilience scores were associated with higher EE and DP and lower PA. Barbados' EPs' higher emotional exhaustion may be linked to their lower level of resilience.

Associations with self-care health questions, burnout and resilience

Depression was linked to high burnout and low resilience scores in this sample. This has been documented in other studies, such as Ahola's study of 3270 employees where the odds ratios of burnout for depressive symptoms and depressive disorders respectively were 8.1 (CI 6.5-10.0) and 5.0 (CI 3.9-6.6).¹³ Evidence suggests that burnout and depression exist on a continuum and it is therefore difficult to establish a causal relationship between the two.^{53,54} A recent multicenter study of EM residents showed that evaluation of burnout using the MBI correlates with well-being instruments.⁵⁵ As was shown in this study, there is an established link between depression and low resilience, however, even

though there was an association, a bidirectional causal relationship cannot be inferred.²⁹ Results of this study showed a tendency towards higher levels of depression and EE in the unmarried group and those without children. This was also the findings of a Finnish study where it was documented that those who were unmarried, older and female had a higher incidence of burnout and depression.²⁸

The use of pharmaceuticals to aid in sleeping and alcohol use were linked to higher burnout scores in this study. This suggests a relationship between burnout, sleep disturbances and alcohol use, which has been documented in the literature.^{10,14,16} This study, however, cannot conclude a causal relationship. Burnout may be more likely to lead to increased substance use as respondents may seek a panacea for burnout symptoms.

We found evidence of high emotional exhaustion and depersonalization scores among EPs working in three Caribbean countries. Concurrently, resilience was high. Health promotion approaches need to be implemented to reduce burnout symptoms and promote quality of work life among ED physicians. Future research is necessary to further delineate influencers of burnout in the context of Caribbean emergency rooms.

Recommendations for practice and future research

EPs must recognize that work-life balance may change based on age and stage in their career as priorities and responsibilities also change. This calls for constant re-evaluation of both short-and long-term goals to cultivate activities with these in mind.⁵⁶ In this study, having children and/or a spouse correlated with reduced burnout levels; this further affirms the importance of enhancing at-home relationships.⁴⁹ Some ways described in the literature of achieving balance include understanding personal priorities and then prioritising tasks, time management, establishing boundaries e.g. having protected time at home and having professional mentors for guidance and to increase work competencies.³⁶⁻⁵⁸ Given the contextual differences in Barbados (longer work hours) and the evidence of higher emotional exhaustion scores, work hour restriction policy implementation and mandatory vacation leave could contribute to a reduction in burnout in this population.

Compassion is often lacking where there are high levels of depersonalisation, as in this study. A total of 29 health professionals who underwent a total of 28 hours of a stress reduction programme over eight weeks, had a 35% reduction in stress, a 30% reduction in rumination and a 20% reduction in negative affect.⁵⁹ These effects lasted through to at least three months after the completion of the programme. Mindfulness-based stress reduction programmes (MBSR) should be utilised by physicians to prevent burnout and mitigate the effects of burnout if it is already present. Shapiro

demonstrated that this reduced stress and increased quality of life and compassion.⁶⁰

Studies cite burnout as being “highly dependent on ‘system factors’” versus sole dependence on individuals.⁶¹ On a meta-analysis review of 25 studies on the effectiveness of burnout interventions by Awa et al, those interventions that were targeted to both the individual and the organization had longer-lasting effects in contrast to individual-only targeted interventions, 12 months vs. six months.⁶² Organisational changes are also fundamental in building resilience.³⁰ Through the development and accessibility of job resources to exceed job demands, hospitals are able to support staff. This support offered can also prompt individual resources. This is referred to as the JD-R model.³⁰ Several workplace resilience models can be used. One such is the Modified Health Services Workplace Environmental Resilience Model which places focus on resources in three domains: personal, practice and professional.⁶³ This study however did not include organisational assessment or qualitative analysis. Future research should consider qualitative explorations of the influencers on burnout and resilience among EPs, including exploration of the workplace environments and cultural differences so that informed recommendations can be made to mitigate burnout and enhance resilience. In addition, burnout profiles (Burnout, Disengaged, Overworked, Ineffective, Engaged) may be used for the interpretation of future results as these have correlated with organisation variables.⁶⁴ Also, further research should also seek to correlate the burnout levels and profiles for which resilience factors were most protective.

Limitations

This was a multicenter study including three territories. The response rate was just over 60% which is acceptable. The low numbers of EPs in these territories led to a total sample size of 111 participants. This small sample size meant that we were limited in our clustering and sub-group analyses. The method of data collection had the potential for self-reporting bias. This could include both burnt-out individuals lacking the energy to participate in the study and those not suffering from burnout lacking interest in the topic. Importantly, there was only one respondent over the age of 60 years in the total of 111 physicians participating and therefore this would have skewed any correlations made in that age group making associations difficult to interpret regarding age. This was a cross-sectional one, which means causality is difficult to determine. For example, it could not be clearly ascertained whether burnout leads to poor self-care and depressive symptoms or if those with poor self-care and depressive symptoms were more susceptible to burnout. Given that the study was not qualitative and did not include workplace assessments, our recommendations could not be tailored specifically for organisations within the territories.

Burnout is typically described as high levels of emotional exhaustion (EE), high depersonalisation (DP) and low personal accomplishment (PA). Authors have recognized that burnout may be difficult to define or compare across studies as different studies may use different cut-off values for definitions of EE, DP and PA¹⁷. In this study, the cutoffs used were high EE as more than 27, high DP as more than 13 and low PA as less than 31. This was determined by splitting the study population into thirds with high burnout sub-categories being determined as being in the upper third percentile.⁶⁴ It must be acknowledged however that the fourth edition of the MBI Manual has suggested the alternate use of burnout profiles to determine levels as a continuum rather than a dichotomy.⁶⁴

Contributors

LL was responsible for the study concept, design, acquisition of the data, data interpretation, creation of the first draft of the manuscript and the critical revision of the manuscript. AA was responsible for the study concept, design, data analysis and interpretation and the critical revision of the manuscript. HW was responsible for the data interpretation and contributed to critical revision of the manuscript. RK was responsible for the study concept, data interpretation and contributed to critical revision of the manuscript. All authors were responsible for the decision to submit this manuscript and have read and approved the final manuscript.

Data sharing statement

Please contact authors for data requests.

Declaration of interests

None to declare

Acknowledgements

We would like to thank the participating emergency department physicians in the Bahamas, Barbados and Trinidad.

Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:[10.1016/j.lana.2022.100357](https://doi.org/10.1016/j.lana.2022.100357).

References

- 1 Cox E. Doctor Burnout, Stress and Depression: Not an Easy Fix. U.S News & World Report. (<http://health.usnews.com/health-news/patient-advice/articles/2016-04-12/doctor-burnout-stress-and-depression-not-an-easy-fix>).
- 2 Cooke GP, Doust JA, Steele MC. A survey of resilience, burnout, and tolerance of uncertainty in Australian general practice registrars. *BMC Med Educ.* 2013;13(1):2.

- 3 Schaufeli WB, Greenglass ER. Introduction to special issue on burnout and health. *Psychol Health*. 2001;16(5):501–510.
- 4 Shanafelt TD, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med*. 2012;172(18):1377–1385.
- 5 Lin M BB, Melamed N, Mott S, Chung AS, Robinson DW. High prevalence of burnout among US emergency residents: results from the 2017 National Emergency Medicine Wellness Survey. *Ann Emerg Med*. 2019;74(5):682–690.
- 6 Kuhn G, Goldberg R, Compton S. Tolerance for uncertainty, burnout, and satisfaction with the career of emergency medicine. *Ann Emerg Med*. 2009;54(1):106–113.
- 7 Popa F, Raed A, Purcarea VL, Lala A, Bobirnac G. Occupational burnout levels in emergency medicine—a nationwide study and analysis. *J Med Life*. 2010;3(3):207.
- 8 Williams L, Rudinsky CDR, Matteucci. *Burnout in Military Emergency Medicine Resident Physicians: a Cross-sectional Study with Comparisons to Other Physician Groups*. Military Medicine; 2019.
- 9 Epstein RM, Krasner MS. Physician resilience: what it means, why it matters, and how to promote it. *Acad Med*. 2013;88(3):301–303.
- 10 Goldberg R, Boss RW, Chan L, et al. Burnout and its correlates in emergency physicians: four years' experience with a wellness booth. *Acad Emerg Med*. 1996;3(12):1156–1164.
- 11 Lloyd S, Streiner D, Shannon S. Burnout, depression, life and job satisfaction among Canadian emergency physicians. *J Emerg Med*. 1994;12(4):559–565.
- 12 Sla B. Physician burnout: a global crisis. *Lancet*. 2016;388(10193):2272–2281.
- 13 Ahola K, Honkonen T, Kivimäki M, et al. Contribution of burnout to the association between job strain and depression: the health 2000 study. *J Occup Environ Med*. 2006;48(10):1023–1030.
- 14 Ben-Itzhak S, Dvash J, Maor M, Rosenberg N, Halpern P. Sense of meaning as a predictor of burnout in emergency physicians in Israel: a national survey. *Clin Exp Emerg Med*. 2015;2(4):217.
- 15 Blendon RJ, DesRoches CM, Brodie M, et al. Views of practicing physicians and the public on medical errors. *N Engl J Med*. 2002;347(24):1933–1940.
- 16 Kalemoglu M, Keskin O. Burnout syndrome at the emergency service. *Scand J Trauma Resusc Emerg Med*. 2006;14:37–40.
- 17 Moss M, Good VS, Gozal D, Kleinpell R, Sessler CN. A Critical Care Societies collaborative statement: burnout syndrome in critical care health-care professionals. A call for action. *Am J Respir Crit Care Med*. 2016;194(1):106–113.
- 18 Youssef FF. Medical student stress, burnout and depression in Trinidad and Tobago. *Acad Psychiatry*. 2016;40(1):69–75.
- 19 Abreu Alves S, Sinval J, Lucas Neto L, Marôco J, Gonçalves Ferreira A, Oliveira P. Burnout and dropout intention in medical students: the protective role of academic engagement. *BMC Med Educ*. 2022;22(1):1–11.
- 20 Erschens R, Keifenheim KE, Herrmann-Werner A, et al. Professional burnout among medical students: systematic literature review and meta-analysis. *Med Teach*. 2019;41(2):172–183.
- 21 Wallace Bain M, Gonzales Cameron M, Carter Roberts R, Zonice Newton S, Pinder Butler S, Frankson M. An assessment of work environment factors correlating with burnout status of physicians employed with the Public Hospital Authority in the Bahamas. *Caribbean Medical Journal*. 2021;83(4):1–13. <https://doi.org/10.48107/CMJ.2021.07.002>.
- 22 van der Heijden F, Dillingh G, Bakker A, Prins J. Suicidal thoughts among medical residents with burnout. *Arch Suicide Res*. 2008;12(4):344–346.
- 23 Arora M, Asha S, Chinnappa J, Diwan AD. Review article: burnout in emergency medicine physicians. *Emerg Med Australas*. 2013;25(6):491–495.
- 24 Estryng-Behar M, Doppia M, Guetarni K, et al. Emergency physicians accumulate more stress factors than other physicians—results from the French SESMAT study. *Emerg Med J*. 2011;28(5):397–410.
- 25 Shanafelt TD, Hasan O, Dyrbye LN, et al. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. *Mayo Clinic Proceedings*. 2015;90(12):1600–1613. Elsevier.
- 26 Maslach Burnout Inventory. Statistics Solutions. (<https://www.statisticssolutions.com/maslach-burnout-inventory-mbi/>).
- 27 Moukartzel A MP, Durand AC, Sebbane M, Bourgeois S, Markarian T, Bompard C, Gentile S. Burnout syndrome among emergency department staff: prevalence and associated factors. *Biomed Res Int*. 2019;2019(6462472):10. <https://doi.org/10.1155/2019/6462472>. pages.
- 28 Kane L. Medscape National Physician Burnout & Suicide Report 2020: the generational divide. (<https://www.medscape.com/slide-show/2020-lifestyle-burnout-6012460>).
- 29 Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: assessing the ability to bounce back. *Int J Behav Med*. 2008;15(3):194–200.
- 30 Ungar M. *Multisystemic Resilience: Adaptation and Transformation in Contexts of Change*. USA: Oxford University Press; 2021.
- 31 Nedrow A, Steckler NA, Hardman J. Physician resilience and burnout: can you make the switch? *Fam Pract Manag*. 2013;20(1):25.
- 32 Ahola K, Honkonen T, Isometsä E, et al. The relationship between job-related burnout and depressive disorders—results from the Finnish Health 2000 Study. *J Affect Disord*. 2005;88(1):55–62.
- 33 Gabriel BA. Bucking burnout: cultivating resilience in today's physicians. *AAMC Reporter May*. 2013.
- 34 Jensen PM, Trollope-Kumar K, Waters H, Everson J. Building physician resilience. *Can Fam Physician*. 2008;54(5):722–729.
- 35 Zhang Q, Mu M-C, He Y, Cai Z-L, et al. Burnout in emergency medicine physicians: a meta-analysis and systematic review. *Medicine*. 2020;99(32):1–7.
- 36 Hutchinson T, Haase S, French S, McFarlane T. Stress, burnout and coping among emergency physicians at a major hospital in Kingston, Jamaica. *West Indian Med J*. 2014;63(3):262.
- 37 Accident and Emergency Department Services. (<https://www.qhconnect.com/services/accident-emergency-department/>).
- 38 North Central Regional Health Authority. (<https://ncrha.co.tt/eric-williams-medical-sciences-complex/>).
- 39 Princess Margaret Hospital. (<http://www.pmh.phabahamas.org/about/>).
- 40 Mutair AA, Mutari AA, Chagla H, Alawam K, Alsalmán K, Ali A. Examining and adapting the psychometric properties of the Maslach Burnout Inventory-Health Services Survey (MBI-HSS) among healthcare professionals. *Appl Sci*. 2020;10(5):1890. <https://www.mdpi.com/2076-3417/10/5/1890>.
- 41 Wagnild GM. *The Resilience Scale User's Guide: For the US English Version of the Resilience Scale and the 14-Item Resilience Scale (RS-14)*. Resilience Center; 2016.
- 42 Lee RT, Seo B, Hladkyj S, Lovell BL, Schwartzmann L. Correlates of physician burnout across regions and specialties: a meta-analysis. *Hum Resour Health*. 2013;11(1):48.
- 43 Martini S, Arfken CL, Churchill MA, Balon R. Burnout comparison among residents in different medical specialties. *Acad Psychiatry*. 2004;28(3):240–242.
- 44 McMurray JE, Linzer M, Konrad TR, Douglas J, Shugerman R, Nelson K. The work lives of women physicians. *J Gen Intern Med*. 2000;15(6):372–380.
- 45 Amanullah S, Ramesh Shankar R. *The Impact of COVID-19 on Physician Burnout Globally: a Review*. Healthcare: MDPI; 2020:421.
- 46 Templeton K, Bernstein CA, Sukhera J, et al. *Gender-Based Differences in Burnout: Issues Faced by Women Physicians*. NAM Perspectives; 2019.
- 47 Yan S, Shen X, Wang R, et al. Challenges faced by emergency physicians in China: an observation from the perspective of burnout. *Front Psychiatry*. 2021:2063.
- 48 Shanafelt TD, Balch CM, Bechamps GJ, et al. Burnout and career satisfaction among American surgeons. *Ann Surg*. 2009;250(3):463–471.
- 49 West CP, Dyrbye LN, Erwin PJ, Shanafelt TD. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *Lancet North Am Ed*. 2016;388(10057):2272–2281.
- 50 Keller KL, Koenig WJ. Management of stress and prevention of burnout in emergency physicians. *Ann Emerg Med*. 1989;18(1):42–47.
- 51 Taku K. Relationships among perceived psychological growth, resilience and burnout in physicians. *Personal Individ Differ*. 2014;59:120–123.
- 52 McCain RS, McKinley N, Dempster M, Campbell WJ, Kirk SJ. A study of the relationship between resilience, burnout and coping strategies in doctors. *Postgrad Med J*. 2018;94(1107):43–47.
- 53 Bianchi R, Schonfeld IS, Laurent E. Burnout–depression overlap: a review. *Clin Psychol Rev*. 2015;36:28–41.
- 54 Thomas NK. Resident burnout. *JAMA*. 2004;292(23):2880–2889.
- 55 Williamson K LP, Cheema N, Hartman N, Lovell EO, Emergency Medicine Education Research Alliance (EMERA). Comparing the Maslach Burnout Inventory to other well-being instruments in emergency medicine residents. *J Graduate Med Educ*. 2018;10(5):532–536.

- 56 Urman RD, Ehrenfeld JM. *Physicians' Pathways to Non-Traditional Careers and Leadership Opportunities*. Springer Science & Business Media; 2011.
- 57 Gagnano A, Simbula S, Miglioretti M. Work–life balance: weighing the importance of work–family and work–health balance. *Int J Environ Res Public Health*. 2020;17(3):907.
- 58 Witzig TE, Smith SM. Work-life balance solutions for physicians—it's all about you, your work, and others. *Mayo Clinic Proceedings*. 2019;94(4):573–576. Elsevier.
- 59 Martín-Asuero A, García-Banda G. The mindfulness-based stress reduction program (MBSR) reduces stress-related psychological distress in healthcare professionals. *Span J Psychol*. 2010;13(02):897–905.
- 60 Shapiro SL, Astin JA, Bishop SR, Cordova M. Mindfulness-based stress reduction for health care professionals: results from a randomized trial. *Int J Stress Manage*. 2005;12(2):164.
- 61 Nordenholz KE, Alvarez A, Lall MD, et al. Optimizing wellness in academic emergency medicine. *J Wellness*. 2020;2(2):8. <https://doi.org/10.18297/jwellness/vol2/iss2/8>.
- 62 Awa WL, Plaumann M, Walter U. Burnout prevention: a review of intervention programs. *Patient Educ Couns*. 2010;78(2):184–190.
- 63 Cusack L, Smith M, Hegney D, et al. Exploring environmental factors in nursing workplaces that promote psychological resilience: constructing a unified theoretical model. *Front Psychol*. 2016;7(600):1–8.
- 64 Leiter MP, Maslach C. Latent burnout profiles: a new approach to understanding the burnout experience. *Burnout Res*. 2016;3(4):89–100.