Journal of Health and Social Sciences 2017; 2,2:161-172

ORIGINAL ARTICLE
IN OCCUPATIONAL HEALTH

The health of healthcare: Emergency department physician well-being

Martin Gagne[1], Adam Schwartz[2], Steven Zimmerman[3]

Affiliations:

[1] D.O., M.A., Good Samaritan Hospital Medical Center, West Islip, New York, USA.
[2] D.O., Good Samaritan Hospital Medical Center, West Islip, New York, USA.
[3] M.D., F.A.A.E.M., F.A.C.E.P., Physician at City, New York, USA.

Corresponding author:

Dr Martin Gagne, 1000 Montauk Highway, West Islip, NY 11795, USA.
E-mail: mgagne@nyit.edu

Abstract

Introduction: Physician health and well-being is an important issue that ultimately affects job performance. We compared the self-reported incidence of known medical issues, physical and mental health symptoms, and health behaviors of Emergency Physicians (EPs) with the general public in the United States.
Methods: Questions selected from a national survey conducted by the Center for Disease Control (CDC) about public health trends were distributed to via Facebook to a private group of 12,917 EPs. Responses were compared between EPs and the general population using Chi-square tests of independence.
Results: Our results demonstrated that EPs suffer less from chronic diseases, especially those related to the cardiopulmonary system; however, they suffer from a higher incidence of musculoskeletal pain and infectious disease complaints. EPs also exhibit higher rates of mental health symptoms, sleep-related complications, and alcohol consumption.
Conclusions: Awareness, education, and advocacy may help improve physician health and ultimately job performance.

KEY WORDS: Centers for Disease Control and Prevention (U.S.); emergency service, hospital; health promotion; physicians; preventive medicine; occupational medicine; social media.

Riassunto

Introduzione: La salute ed il benessere del medico rappresentano un problema importante che in ultima analisi ha ripercussioni sulla sua performance lavorativa. Abbiamo confrontato l'incidenza dei disturbi medici noti, dei sintomi fisici e mentali e degli stili di vita salubri auto-riportati dai medici di medicina d'urgenza con quelli della popolazione generale negli Stati Uniti d'America.
Metodi: Domande selezionate da uno studio nazionale condotto dal Centro per il Controllo delle Malattie (CDC) sui trend di salute pubblica sono state distribuite via Facebook ad un gruppo privato di 12.971 medici di medicina d'urgenza. Le risposte dei medici di medicina d'urgenza e della popolazione generale sono state confrontate usate il Test del Chi quadrato.
Risultati: I nostri risultati hanno dimostrato che i medici di medicina d'urgenza soffrono meno di malattie croniche, specialmente quelle del sistema cardio-respiratorio; tuttavia, riferiscono una maggiore incidenza di dolori muscolo-scheletrici e di malattie infettive. I medici d'urgenza evidenziano inoltre una frequenza più elevata di sintomi psichici, di complicanze legate al sonno ed un maggiore consumo di alcol.
Conclusioni: Consapevolezza, educazione e sostegno possono servire a migliorare la salute dei medici ed in definitiva, la loro performance lavorativa.

TAKE-HOME MESSAGE

In this U.S.-based study, emergency physicians suffer less from chronic diseases, especially those related to the cardiopulmonary system; however, they suffer from a higher incidence of musculoskeletal pain and infectious disease complaints. Emergency physicians also exhibit higher rates of mental health symptoms, sleep-related complications, and alcohol consumption. Awareness, education, and advocacy may help improve physician health and ultimately job performance.

Competing interests - none declared.

Cite this article as: Gagne M, Schwartz A, Zimmerman S. The health of healthcare: Emergency department physician well-being. J Health Soc Sci. 2017;2(2):161-172

DOI 10.19204/2017/thhl4

Received: 19/03/2017 Accepted: 14/06/2017 Published: 15/07/2017

INTRODUCTION

Physician well-being is an important public health concern with significant implications regarding quality of care and patient outcomes. Studies have shown that physicians who engage in healthy lifestyles are more likely to discuss lifestyle choices with their patients [1]; and therefore, note a higher frequency of patient compliance [2]. Additionally, an Emergency Physicians (EPs) ability to perform the duties of the profession, which are physically demanding and require intense mental concentration, may be significantly compromised when he/she does not take care of their own health first.

Prior studies have demonstrated that physicians have lower mortality rates than the general population [3–7]. Studies also have shown that physicians smoke less and drink less when compared to the general public [3–9].

There is variability amongst previously published studies comparing the mental health of EPs with that of the general public. While some studies have demonstrated that the prevalence of self-reported anxiety and depression is similar amongst emergency department staff in comparison to the general population, other studies have shown disproportionately high rates of stress and depression [12, 13, 16].

Public health awareness improves each year due to an increased media focus on healthy lifestyles. The purpose of this study is to compare the current self-reported physical and mental health of EPs with that of the general population.

METHODS

We used the questions and data from the National Health Interview Study (NHIS) conducted in 2014 by the Center for Disease Control (CDC). The NHIS is a validated, cross-sectional interview study created in 1957 to track progression toward national health objectives by monitoring trends in illness and disability. Data are collected on the prevalence of chronic conditions in the population, as well as information on risk factors such as tobacco use, alcohol consumption, sleep habits, healthcare acquisition, and healthcare maintenance. The most recent NHIS survey with published open-access results is available online from 2014 [17] and surveyed 36,697 subjects across the United States.

We selected questions from the 2014 NHIS survey that were related to chronic illness, mental health, and alcohol and tobacco use. For the purpose of statistical analysis, questions were only selected if open-access results were published in categorical format. The selected questions were then formatted for online digital distribution via surveymonkey.com. The actual content of each question was preserved. There were 29 total questions, although some contained brief sub-questions. No single question was a requisite for completion, and each question contained an option for *refused or don't know*. We also collected demographic data including age, gender, ethnicity, height, weight, practice location, job position, level of experience, and whether the majority of shifts worked are days, nights, or variable. There was no personally identifying information attached to the participants. Submitted surveys were stored as anonymous responses on the surveymonkey.com server. Reponses were restricted to a single response from an IP address.

A link to the survey was distributed via the Facebook group entitled *EM Docs*. The group is primarily composed of emergency physicians, but also includes some nurses and first responders. The group's administrator verifies new members. There are 10,000 members. This online community bypasses institutional affiliation and is free from administrative oversight. Links to the survey were posted on the message board twice, first on November 11, 2016 and again on January 17th, 2017.

Statistical analysis was then performed on the surveys. Responses to the *don't know or refused* options were limited in both surveys; thus, these choices were eliminated from statistical analysis. Only categorical variables were selected for amenability to statistical analysis. For each question, results were individually compiled into tables for analysis via

Chi-square tests of independence. Each calculation derived a Pearson chi-square value, p-value, degrees of freedom, and percentage contribution for each response. Instances in which the p-value was found to be less than 0.05 were deemed statistically significant.

RESULTS

218 surveys were submitted, although not every respondent completed every question. 79 respondents were between the ages of 25 and 34 years old, 98 were between 35 and 44, 31 were between 45 to 54, 9 were between 55 to 64, and 1 was over the age of 65. 150 respondents identified as male, while 67 respondents identified as female. 195 attendings and 21 residents took the survey. The majority of respondents, 89 persons, reported being in practice for 0-5 years. 70 have been practicing for 6-10 years, 26 for 11-15 years, 21 for 16-20 years, and 12 for 20+ years. 40 persons reported working strictly days, 31 reported working nights, and 147 reported a variable schedule. Demographic data is provided in Table 1. EPs were significantly less likely to report hypertension (12.15%) than the general population (33.82%), (χ^2 (1) = 44.73, P < .05). Additionally, EPs reported statistically significant lower prevalence of high cholesterol (14.49% vs. 29.89%) (χ^2 (1) = 24.12, P < .05), angina (0% vs. 2.06%) (χ^2 (1) = 4.49, P < .05), heart attacks (0.47% vs. 3.73%) (χ^2 (1) = 6.3, P < .05), heart conditions or disease (3.77% vs. 8.49%) (χ^2 (1) = 6.06, P < .05), emphysema (0% vs. 1.86%) (χ^2 (1) = 4.01, P < .05), chronic obstructive pulmonary disease (COPD) (0.47% vs. 3.74%) (χ^2 (1) = 6.32, P < .05), and cancer (3.77% vs. 9.40%) (χ^2 (1) = 7.86, P < .05). On the other hand, EPs were significantly more likely to report a history of asthma (19.91%) than the public (13.01%), (χ^2 (1) = 8.80, P < .05). Results are shown in Table 2. EPs were also significantly less likely to report a history of diabetes than the general population (1.90% vs. 10.45%), (χ^2 (1) = 19.01, P < .05). Nonetheless, EPs reported an increased prevalence of a history of pre-diabetic conditions (10.53% vs. 5.69%), (χ^2 (1) = 9.02, P < .05). These results are presented in Table 3. Additionally, over the past 12 months, EPs reported significantly lower rates of chronic bronchitis (0.47% vs. 4.20%) (χ^2 (1) = 7.27, P < .05), weak or failing kidneys (0% vs. 2.22%) (χ^2 (1) = 4.79, P < .05), or any kind of liver condition (0.15% vs. 1.63%) (χ^2 (1) = 27.44, P < .05). Results are provided in Table 4. When comparing rates of self-reported pain, EPs were significantly more likely to report pain over the past 3 months than the general population, including neck pain (39.71% vs. 16%) (χ^2 (1) = 86.35, P < .05), low back pain (51.44% vs. 30.17%) (χ^2 (1) = 44.33, P < .05), and severe headache or migraine (37.98% vs. 14.81%) (χ^2 (1) = 87.37, P < .05). These results are exhibited in Table 5. The self-reported prevalence of viral-like symptoms was also compared. These results are presented in Table 6. Over the last 2 weeks, EPs were found to report significantly higher frequency of head cold or chest cold (31.40% vs. 10.75%) (χ^2 (1) = 90.61, P < .05), as well as intestinal illness with vomiting or diarrhea (11.00% vs. 4.95%) (χ^2 (1) = 16.06, P < .05).

Health-associated choices and behaviors were also compared between EPs and the general population. Results were significant for lower rates of lifetime smoking amongst EPs (19.23% vs. 40.19%) (χ^2 (1) = 37.82, P < .05) and current everyday smoking (1.44% vs. 33.14%) (χ^2 (1) = 141.48, P < .05). Table 7 presents these results. On the other hand, EPs reported a higher rate of consuming more than 12 drinks in one's lifetime (96.63% vs. 42.79%) (χ^2 (1) = 241.49, P < .05). EPs also reported higher rates of binge drinking at least one day over the past year (55.39%) than the public (37.99%) (χ^2 (1) = 25.96, P < .05), which is defined by the CDC as consuming more than 5 drinks in one day for males and more than 4 drinks in one day for females. Results regarding alcohol consumption are demonstrated in Table 8. Sleep-related problems were compared between EPs and the general population. EPs were significantly more likely to report trouble falling asleep over 1-6 days in the past week (57.97% vs. 25%) (χ^2 (2) = 119.80, P < .05), trouble

staying asleep (52.17% vs. 22.37%) (χ^2 (2) = 105.54, P < .05), and consuming medication to help fall asleep or stay asleep (31.55% vs. 7.39%) (χ^2 (2) = 170.05, P < .05). Results related to sleep issues are presented in Table 9. Finally, EPs were also more likely to report mental health-related symptoms over the past 30 days than the general public. During the past 30 days, EPs were significantly more likely to report that some of the time they felt sad (18.84% vs. 8.22%) (χ^2 (4) = 101.25, P < .05), nervous (25.60% vs. 11.96%) (χ^2 (4) = 233.93, P < .05), restless or fidgety (31.55% vs. 12.20%) (χ^2 (4) = 138.21, P < .05), hopeless (14.01% vs. 4.60%) (χ^2 (4) = 160.94, P < .05), like everything was an effort (34.80% vs. 9.56%) (χ^2 (4) = 309.67, P < .05), and worthless (10.24% vs. 3.71%) (χ^2 (4) = 129.47, P < .05). Mental health results are given in Table 10.

Table 1. Demographic characteristics of EP and NHIS Respondents.

Age	**# of EP Respondents**	**% of EP Respondents**		
25 – 34 years old	79	36.24%	N/a	
35 – 44 years old	98	44.95%		
45 – 54 years old	31	14.22%		
55 – 64 years old	9	4.12%		
Over 65 years old	1	0.46%		
Total	218	100%		
Gender	**# of EP Respondents**	**% of EP Respondents**	# of NHIS Respondents	% of NHIS Respondents
Male	150	69.12%	16,398	44.68%
Female	67	30.88%	20,299	55.32%
Total	217	100%	36,697	100%
Level of Training	**# of EP Respondents**	**% of EP Respondents**	N/a	
Attending	195	90.27%		
Resident	21	9.72%		
Total	216	100%		
Years of Practice	**# of EP Respondents**	**% of EP Respondents**	N/a	
0 – 5 years	89	40.82%		
6 – 10 years	70	32.11%		
11 – 15 years	26	11.92%		
16 – 20 years	21	9.63%		
20+ years	12	5.50%		
Total	218	100%		
Schedule	**# of EP Respondents**	**% of EP Respondents**	N/a	
Strictly days	40	18.34%		
Strictly nights	31	14.22%		
Variable	147	67.43%		
Total	218	100%		

Table 2. Self-reported incidence of chronic conditions.

NHIS Question ID	Question: Have you ever been told by a doctor or other healthcare professional that you had...	NHIS results	EM Docs results	DF	Chi-Square	P-Value
ACN.010_00.000	Hypertension?	Yes: 12,396 (33.82%) No: 24,254 (66.18%) Total: 36,650	Yes: 8 (3.77%) No: 204 (96.23%) Total: 212	1	44.73	<0.0001
ACN.023_00.010	High cholesterol?	Yes: 10,928 (29.89%) No: 25,367 (70.11%) Total: 36,565	Yes: 31 (14.49%) No: 183 (85.51%) Total: 214	1	24.12	<0.0001
ACN.031_02.000	Angina?	Yes: 756 (2.06%) No: 35,880 (97.94%) Total: 36,636	Yes: 0 (0%) No: 213 (100%) Total: 213	1	4.49	0.0341
ACN.031_03.000	A heart attack?	Yes: 3,114 (8.49%) No: 33,552 (91.51%) Total: 36,666	Yes: 1 (0.47%) No: 212 (99.53%) Total: 213	1	6.3	0.0121
ACN.031_04.000	Any kind of heart condition or heart disease?	Yes: 1,183 (3.23%) No: 35,484 (96.77%) Total: 36,667	Yes: 8 (3.77%) No: 204 (96.23%) Total: 212	1	6.06	0.0138
ACN.031_05.000	A stroke?	Yes: 1,183 (3.23%) No: 35,484 (96.77%) Total: 36,667	Yes: 2 (0.94%) No: 211 (99.06%) Total: 213	1	3.56	0.0591
ACN.031_06.000	Emphysema?	Yes: 681 (1.86%) No: 35,988 (98.14%) Total: 36,669	Yes: 0 (0%) No: 212 (100%) Total: 212	1	4.01	0.0452
ACN.035_00.000	COPD?	Yes: 1,371 (3.74%) No: 35,284 (96.26%) Total: 36,655	Yes: 1 (0.47%) No: 212 (99.53%) Total: 213	1	6.32	0.0119
ACN.080_00.000	Asthma?	Yes: 4,769 (13.01%) No: 31,898 (86.99%) Total: 36,667	Yes: 42 (19.91%) No: 169 (80.09%) Total: 211	1	8.8	0.003
ACN.110_00.000	An ulcer?	Yes: 2,757 (7.52%) No: 33,904 (92.48%) Total: 36,661	Yes: 9 (4.29%) No: 201 (95.71%) Total: 210	1	3.15	0.076
ACN.130_00.000	Cancer or a malignancy of any kind?	Yes: 3,448 (9.40%) No: 33,225 (90.60%) Total: 36,673	Yes: 8 (3.77%) No: 204 (96.23%) Total: 212	1	7.86	0.005

Table 3. Self-reported incidence of diabetes and pre-diabetic conditions.

NHIS Question ID	Question	NHIS results	EM Docs results	DF	Chi-Square	P-Value
ACN.160_00.000	Have you EVER been told by a doctor or other health professional that you have diabetes?	Yes: 3,832 (10.45)% No: 32,219 (87.85)%) Borderline: 626 (1.71%) Total: 36,677	Yes: 1,867 (5.69%) No: 30,965 (94.31%) Total: 32,832	2	19.01	<0.0001
ACN.165_00.000	Have you EVER been told by a doctor or other health professional that you have any of the following: pre-diabetes, impaired fasting glucose, impaired glucose tolerance, borderline diabetes, or high blood sugar?	Yes: 1,867 (5.69%) No: 30,965 (94.31%) Total: 32,832	Yes: 22 (10.53% No: 187 (89.47%) Total: 209	1	9.02	0.0027

Table 4. Self-reported incidence of recent disease.

NHIS Question ID	**Question: DURING THE PAST 12 MONTHS, have you been told by a doctor or other health professional that you had…**	NHIS results	EM Docs results	DF	Chi-Square	P-Value
ACN.201_01.000	Hay fever?	Yes: 2,948 (8.04%) No: 33,715 (91.96%) Total: 36,663	Yes: 23 (10.90%) No: 188 (89.10%) Total: 211	1	2.32	0.1281
ACN.201_02.000	Sinusitis?	Yes: 4,582 (12.50%) No: 32,075 (87.50) Total: 36,657	Yes: 25 (11.85%) No: 186 (88.15%) Total: 211	1	0.08	0.7754
ACN.201_03.000	Chronic bronchitis?	Yes: 1,539 (4.20%) No: 35,134 (95.80%) Total: 36,673	Yes: 1 (0.47%) No: 210 (99.53%) Total: 211	1	7.27	0.007
ACN.201_04.000	Weak/failing kidneys?	Yes: 814 (2.22%) No: 35,846 (97.78%) Total: 36,660	Yes: 0 (0%) No: 211 (100%) Total: 211	1	4.79	0.0286
ACN.201_05.000	Any kind of liver condition?	Yes: 597 (1.63%) No: 36,067 (98.37%) Total: 36,664	Yes: 3 (0.15%) No: 206 (99.85%) Total: 209	1	27.44	<0.0001

Table 5. Self-reported incidence of recent pain.

NHIS Question ID	**Question: The following questions are about pain you may have experienced in the PAST THREE MONTHS. Please refer to pain that LASTED A WHOLE DAY OR MORE. Do not report aches and pains that are fleeting or minor. DURING THE PAST THREE MONTHS, did you have…**	NHIS results	EM Docs results	DF	Chi-Square	P-Value
ACN.300_00.000	Neck pain?	Yes: 5,868 (16%) No: 30,805 (84%) Total: 36,673	Yes: 83 (39.71%) No: 126 (60.29%) Total: 209	1	86.35	<0.0001
ACN.310_00.000	Low back pain?	Yes: 11,063 (30.17% No: 25,608 (69.83%) Total: 36,671	Yes: 107 (51.44%) No: 101 (48.56%) Total: 208	1	44.33	<0.0001
ACN.331_02.000	Severe headache or migraine?	Yes: 5,431 (14.81%) No: 31,239 (85.19%) Total: 36,670	Yes: 79 (37.98%) No: 129 (62.02%) Total: 208	1	87.37	<0.0001

Table 6. Self-reported incidence of recent viral-like symptoms.

NHIS Question ID	Question	NHIS results	EM Docs results	DF	Chi-Square	P-Value
ACN.350_00.000	Did you have a head cold or chest cold that started DURING THE LAST 2 WEEKS?	Yes: 3,943 (10.75%) No: 32,730 (89.25%) Total: 36,673	Yes: 65 (31.40%) No: 142 (68.60%) Total: 207	1	90.61	<0.0001
ACN.360_00.000	Did you have a stomach or intestinal illness with vomiting or diarrhea that started DURING THE LAST TWO WEEKS?	Yes: 1,817 (4.95%) No: 34,866 (95.05%) Total: 36,683	Yes: 23 (11.00%) No: 186 (89.00%) Total: 209	1	16.06	<0.0001

Table 7. Self-reported use of cigarettes and tobacco.

NHIS Question ID	Question	NHIS results	EM Docs results	DF	Chi-Square	P-Value
AHB.010_00.000	Have you smoked at least 100 cigarettes in your ENTIRE LIFE?	Yes: 14,672 (40.19%) No: 21,838 (59.81%) Total: 36,510	Yes: 40 (19.23%) No: 168 (80.77%) Total: 208	1	37.82	<0.0001
AHB.030_00.000	Do you NOW smoke cigarettes every day, some days or not at all?	Every day: 4,858 (33.14%) Some days: 1,520 (10.37%) Not at all: 8,281 (56.49%) Total: 14,659	Every day: 3 (1.44%) Some days: 2 (0.96%) Not at all: 203 (97.60%) Total: 208	2	141.48	<0.0001
AHB.085_00.020	Do you NOW smoke tobacco products other than cigarettes every day, some days, rarely, or not at all?	Every day: 341 (4.20%) Some days: 378 (4.66%) Rarely: 1,413 (17.41%) Not at all: 5,983 (73.73%) Total: 8,115	Every day: 0 (0%) Some days: 0 (0%) Rarely: 7 (3.38%) Not at all: 200 (96.62%) Total: 207	3	55.86	<0.0001
AHB.085_00.040	Do you NOW use smokeless tobacco products every day, some days, rarely, or not at all?	Every day: 579 (14.71%) Some days: 213 (5.41%) Rarely: 268 (6.81%) Not at all: 2,875 (73.06%) Total: 3,935	Every day: 579 (14.71%) Some days: 213 (5.41%) Rarely: 268 (6.81%) Not at all: 2,875 (73.06%) Total: 3,935	3	72.6	<0.0001

Table 8. Self-reported degree of alcohol consumption.

NHIS Question ID	Question	NHIS results	EM Docs results	DF	Chi-Square	P-Value
AHB.140_00.000	In ANY ONE YEAR, have you had at least 12 drinks of any type of alcoholic beverage?	Yes: 23,035 (63.3%) No: 13,356 (36.7%) Total: 36,391	Yes: 190 (90.91%) No: 19 (9.09%) Total: 209	1	68.32	<0.0001
AHB.150_00.000	In your ENTIRE LIFE, have you had at least 12 drinks of any type of alcoholic beverage?	Yes: 5,709 (42.79%) No: 7,634 (57.21%) Total: 13,343	Yes: 201 (96.63%) No: 7 (3.37%) Total: 208	1	241.49	<0.0001
AHB.180_01.000	In the PAST YEAR, on how many DAYS did you have 5 or more drinks (males) or 4 or more drinks (females) of any alcoholic beverage?	None: 14,010 (62.01%) 1-365: 8,582 (37.99%) Total: 22,592	None: 91 (44.61%) 1-365: 113 (55.39%) Total: 204	1	25.96	<0.0001

Table 9. Self-reported rates of difficulty sleeping.

NHIS Question ID	Question: In the past week, how many times did you…	NHIS results	EM Docs results	DF	Chi-Square	P-Value
ASI.350_00.000	Have trouble falling asleep?	None: 23,106 (64.9%) 1-6: 8,886 (25%) 7+: 3,623 (10.2%) Total: 35,615	None: 72 (34.78%) 1-6: 120 (57.97%) 7+: 15 (7.25%) Total: 207	2	119.8	<0.0001
ASI.360_00.000	Have trouble staying asleep?	None: 22,022 (61.77%) 1-6: 7,927 (22.37%) 7+: 5,655 (15.86%) Total: 35,654	None: 74 (35.75%) 1-6: 108 (52.17%) 7+: 25 (12.08%) Total: 207	2	105.54	<0.0001
ASI.370_00.000	Take medication to help you fall asleep or stay asleep?	None: 30,657 (85.89%) 1-6: 2,637 (7.39%) 7+: 2,401 (6.73%) Total: 35,695	None: 106 (56.68%) 1-6: 59 (31.55%) 7+: 22 (11.76%) Total: 187	2	170.05	<0.0001

Table 10. Self-reported incidence of mental health symptoms.

NHIS Question ID	Question: DURING THE PAST 30 DAYS, how often did you feel…	NHIS results	EM Docs results	DF	Chi-Square	P-Value
ASI.390_01.000	So sad that nothing could cheer you up?	All of the time: 384 (1.08%) Most of the time: 815 (2.29%) Some of the time: 2,921 (8.22%) Little of the time: 4,722 (13.29%) None of the time: 26,686 (75.11%) Total: 35528	All of the time: 0 (0%) Most of the time: 2 (0.97%) Some of the time: 39 (18.84%) Little of the time: 65 (31.40%) None of the time: 101 (48.79%) Total: 207	4	101.25	<0.0001
ASI.390_02.000	Nervous?	All of the time: 717 (2.02%) Most of the time: 991 (2.79%) Some of the time: 4,250 (11.96%) Little of the time: 6,306 (17.75%) None of the time: 23,261 (65.48%) Total: 35525	All of the time: 2 (0.97%) Most of the time: 22 (10.63%) Some of the time: 53 (25.60%) Little of the time: 93 (44.93%) None of the time: 37 (17.87%) Total: 207	4	233.93	<0.0001
ASI.390_03.000	Restless or fidgety?	All of the time: 938 (2.6%) Most of the time: 1,252 (3.5%) Some of the time: 4,325 (12.2%) Little of the time: 5,512 (15.5%) None of the time: 23,487 (66.1%) Total: 35,514	All of the time: 2 (0.97%) Most of the time: 15 (7.28%) Some of the time: 65 (31.55%) Little of the time: 61 (29.61%) None of the time: 63 (30.58%) Total: 206	4	138.21	<0.0001
ASI.390_04.000	Hopeless?	All of the time: 328 (0.92%) Most of the time: 534 (1.50%) Some of the time: 1,634 (4.60%) Little of the time: 2,311 (6.51%) None of the time: 30,693 (86.46%) Total: 35,500	All of the time: 0 (0%) Most of the time: 4 (1.93%) Some of the time: 29 (14.01%) Little of the time: 51 (24.64%) None of the time: 123 (59.42%) Total: 207	4	160.94	<0.0001
ASI.390_05.000	That everything was an effort?	All of the time: 1,035 (2.92%) Most of the time: 1,187 (3.35%) Some of the time: 3,390 (9.56%) Little of the time: 4,072 (11.48%) None of the time: 25,792 (72.70%) Total: 35,476	All of the time: 4 (1.96%) Most of the time: 14 (6.86%) Some of the time: 71 (34.80%) Little of the time: 71 (34.80%) None of the time: 44 (21.57%) Total: 204	4	309.67	<0.0001
ASI.390_06.000	Worthless?	All of the time: 301 (0.85%) Most of the time: 400 (1.13%) Some of the time: 1,316 (3.71%) Little of the time: 1,663 (4.69%) None of the time: 31,801 (89.63%) Total: 35,481	All of the time: 0 (0%) Most of the time: 6 (2.93%) Some of the time: 21 (10.24%) Little of the time: 39 (19.02%) None of the time: 139 (67.80%) Total: 205	4	129.47	<0.0001

DISCUSSION

Generally, in this U.S.-based study emergency physicians have less chronic disease compared to the general public. EPs have a lower prevalence of cigarette consumption and smoking-related conditions, including hypertension, heart disease, myocardial infarctions, COPD, and cancers. Cigarette intake may be reduced in this population as a result of the repetitive exposure to acute complications of these diseases in the emergency department setting. EPs tend to drink more alcohol and binge drink more often. They also reported a higher prevalence of sleep-related complications and emotional symptoms. EPs have more difficulty falling asleep, staying asleep, and take sleep medications more routinely. They were also significantly more likely to report feelings of sadness, nervousness, restlessness, hopelessness, worthlessness, and that everything was an effort. Further studies are needed to determine if these trends are related to stress load, psychosocial factors, or personality traits associated with persons seeking a career in the emergency department. EPs also had a higher frequency of viral symptoms, such as upper respiratory infections and gastrointestinal complaints, which may be a manifestation of recurrent exposure to infectious microbes. Finally, they were more likely to report physical symptoms - including recent neck pain, low back pain, headaches, and migraines - which may be explained by long shifts, mental overexertion, poor sleep hygiene, consumption of calorie dense foods during shifts, or the physically demanding nature of the profession. Indeed, the source of the division between EPs and the general population is most likely multivariate and difficult to determine. There is an enormous amount of potential confounding factors than can affect these measures. Nonetheless, the significance of these findings is wide reaching. It is generally accepted that emergency medicine is associated with one of the highest burnout rates of any specialty. Although this is multifactorial, many potential components have been elucidated in this study. Awareness must be raised amongst administrators and emergency providers of factors within the department that negatively affect physical and mental health. Given the potential implications on patient care, managerial and personal precautions should be implemented. Indeed, further research on this topic would be very beneficial to improving outcomes and physician performance.

Limitations

There were a number of potential limitations to this project. This was a survey-based project; and hence, we were limited by the number of responses received, which was small in relation to the size of the *EM Docs* group. We also could not be sure someone did not fill out the survey more than once since we could only limit responses by IP address in this anonymous study. Secondly, there may be some inherent bias based on physician preference of whether or not to participate or abstain from the participation. Being survey based, it was not plausible for us to verify the honesty of the self-reported responses; nonetheless, this was a limitation shared amongst the NHIS responses, as well. Questions pertaining to exercise and eating habits were limited in the NHIS survey; and therefore, it may be difficult to tease out confounding variables impacting health outcomes. Medically trained physicians may have interpreted the wording of questions that were designed by the CDC for laypersons differently. Sixth, while the original 2014 NHIS was conducted by interviewers in households around the country, our truncated survey was digitized for online distribution. Our study was distributed online via Facebook and results may have been skewed by a specific subset of respondents who use social media. Some results may be under or over reported. There may be a small degree of health outcome variability between the year of 2014 (when the NHIS study was conducted) and 2017 (when our study was completed). Finally, the study would benefit from a control group of non-Emergency medicine physicians.

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