

Research Article

Stress, Depression and Job Satisfaction among Physicians in Iraq

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ABSTRACT

Background: Many physicians have left Iraq due to security concerns or were killed because of war or political conflicts in the last several decades. Despite the challenges that physicians experience in Iraq and the importance of the issue of physician stress and depression globally, little is known about stress and depression related to job satisfaction and work environments among physicians in Iraq. The purpose of this study is to elucidate factors that may improve the current challenges experienced by physicians in Iraq.

Methods: Data were collected for two months from October to December 2017 from physicians practicing in Iraq using an online survey.

Results: Safety and work environments are major concerns among physicians in Iraq. Lower job satisfaction is associated

with higher levels of stress and depression. The following factors are also related to higher levels of stress or depression: lower satisfaction with resources, fewer work hours, and sleep problems.

Conclusion: Iraq faces a potentially crippling brain drain situation since 87.5% of the study participants expressed interest in leaving Iraq, and are also concerned with safety in the workplace. Physician migration from developing to developed countries is a global phenomenon. But in the case of Iraq, since the percentage of leaving or intending to leave Iraq is very high, it is important to develop strategies to reduce push factors and to increase physician retention.

Keywords: Depression; Iraq; Job satisfaction; Job stress; Physicians

Introduction

Many physicians have left Iraq due to security concerns or were killed because of war or political conflicts in the last several decades [1,2]. In fact, the rate of violent events that occurred among physicians who left hospitals was 36.7 per 1000 physicians which are extremely high [3]. In addition to security concerns, poor work conditions, low job satisfaction, and a lack of health infrastructure and adequate resources have all contributed to physicians leaving Iraq [1,4,5]. Many medical students in Iraq also experience stress and intend to leave Iraq once they complete their medical education [4].

Stress and depression among physicians are also concerns around the world. For example, physicians in Saudi Arabia experience high levels of stress based on the standardized measure of stress [6]. This stress experienced is associated with being young, single and female [6]. Similarly, more than half of medical staff in Iran reported moderate levels of burnout [7]. Job satisfaction is associated with mental well-being among hospital staff in Turkey [8]. Work environments are important determinants of job satisfaction among health care providers in Kuwait [9]. A study conducted in the United States shows that physician stress negatively affects job satisfaction, mental health, and physical health, and thus leads physicians to leave their practice [10]. In addition to stress, depression is an issue among physicians. A study conducted in Canada found that the rate of depression among physicians has increased [11]. Demanding and stressful work conditions are factors associated with physician depression.

Despite the challenges that physicians experience in Iraq and

the importance of the issue of physician stress and depression globally, little is known about stress and depression related to job satisfaction and work environments among physicians in Iraq. After the advent of the Iraq War in 2003, a large number of Iraq's population, including physicians, left the country due to security concerns [3]. A lack of information about mental health and working conditions among physicians in Iraq may be associated with insufficient awareness of the issue. The purpose of this study is to elucidate factors that may improve the current challenges experienced by physicians in Iraq.

Methods

Data collection

This project was approved by the University of Utah Institutional Review Board (IRB). Data were collected for two months from October to December 2017 from physicians practicing in Iraq using an online survey. One of the authors graduated from medical school and practiced in Iraq before relocating to the US. He sent the link to the online survey to practicing physicians in Iraq whom he knew through his professional network (e.g. the medical school, health care facilities). He also asked them to forward the link to their colleagues who are currently practicing in medicine in Iraq. The eligibility criteria was being a current practicing physician in Iraq. Consent was obtained from each participant. The survey did not collect any identifiable personal information and was anonymously submitted. Since medical education in Iraq is in English, the survey was conducted in English. Because this is an anonymous online survey, it is reasonable to assume that those who did not wish to part in this study simply did not participate.

Measures

Perceived stress: Perceived stress was measured using the Perceived Stress Scale (PSS)-10 which is valid and reliable [12,13]. The PSS-10 has 10 items and uses a 5-point Likert scale (0=never, 4=very often). Some items are reverse coded. Some examples of the items include: “How often have you been upset because of something that happened unexpectedly?” and “How often have you felt unable to control the important things in your life?” The time frame is the last month. Scoring is based on the sum of scores from each item. Higher scores indicate higher levels of stress. Cronbach alpha for this study population was 0.775. The norm from the US healthy population is 13.02 [13].

Depression

Depression was measured using the Patient Health Questionnaire (PHQ)-9 which is valid and reliable [14]. The PHQ-9 has nine items using a 4-point Likert scale (0=not at all, 3=nearly every day). Some examples of the items include: “Little interest or pleasure in doing things” and “Poor appetite or overeating.” The time frame is the last two weeks. Scoring is based on sum of scores from each item. Higher scores indicate higher levels of depression. Cronbach alpha for this study population was 0.839. The score is interpreted as 5=mild depression, 10=moderate depression, 15=moderately severe depression, and 20=severe depression [14].

Self-rated general physical health, physical activity, and sleep problems

Self-rated general physical health was measured using a 5-point Likert scale (1=excellent, 5=poor). Lower scores indicate better health. In addition, participants were asked how many days a week they did more than 30 minutes of physical activity. Furthermore, participants were asked whether they had trouble sleeping at night in the past two weeks (“yes” coded as 1 and “no” coded as 0).

Physician job satisfaction

Physician job satisfaction was measured using the Physician Worklife Survey (PWS) which has been tested for validity and reliability [15]. The PWS uses a 5-point Likert scale (1=strongly agree, 5=strongly disagree). Among nine sub-scales, this study used three sub scales: resources (4 items, e.g. “Medical supplies are available when I need them”), global job satisfaction (5 items, e.g. “Overall, I am pleased with my work”), and global career satisfaction (4 items, e.g. “All things considered, I am satisfied with my career as a physician”). Some items are reverse coded. Scoring is based on a mean of the items in the same sub-scale. Lower scores indicate higher job satisfaction. Cronbach alpha values for this study population were 0.799 for the resource sub-scale, 0.795 for the job satisfaction sub-scale and 0.773 for career satisfaction.

Job-related concerns

The original 11-item scale with a 5-point Likert scale (5=extremely concerned, 1=not at all concerned) was used to measure levels of job-related concerns. The co-author who trained and practiced medicine in Iraq developed a draft of the

scale based on his experiences as a physician in the country. Other authors contributed to finalizing the scale. The 11-items are as follows: 1) “Physical or verbal assaults during work;” 2) “Prescribing unnecessary drugs or sending for unnecessary labs;” 3) “Safety outside the hospital;” 4) “Biased assignment of your duties;” 5) “Lack of respect and appreciation from patients and patient families;” 6) “Career choice to be a physician/risks of being a physician;” 7) “Patient attitudes or other external influences that negatively affect your medical decisions;” 8) Health system in your country (Iraq);” 9) “Quality of administration of your hospital;” 10) “Trustworthiness of your co-workers;” and 11) “Coordination with other health care professionals such as nurses or pharmacists.” This original scale had Cronbach alpha 0.835 which showed good reliability. Scoring was based on mean. Higher scores indicate higher levels of concerns.

Demographic and practice characteristics

Participants were asked their age and gender, and the following practice characteristics were asked: average work hours per week, average number of patients per week, average number of night shifts per month, practice location (e.g. metropolitan area), specialty, practice setting (e.g. large clinic/hospital), practice in inpatient, outpatient or both and number of years practiced after medical school. Moreover, participants answered the following yes/no questions: whether they had any concerns for personal or patient safety in their workplace in the past two months; whether they were interested in practicing outside of Iraq in the future; whether they had ever experienced any physical or verbal assaults during work; and whether they had ever seen a co-worker physically or verbally assaulted at work.

Data analysis

Data were analyzed using IBM SPSS version 22. Descriptive statistics were performed to summarize the characteristics of participants and work environments. Multiple regression analysis was used to examine association between stress/depression (dependent variable) and participant and practice characteristics (independent variables). Multicollinearity was tested using the variance inflation factor (VIF). There was no significant multicollinearity among the variables. Only completed responses were included in the analysis.

Results

Table 1 presents the demographic and practice characteristics of 120 participants. More than half of the participants were women (n=66, 55.0%). Average age of the participants was 29.99 (SD=5.51). On average, the participants had worked as a physician for 6.17 years (SD=4.89). The average number of hours worked per week was 44.30 h (SD=21.76). The average number of patients seen per day was 50.84 (SD=62.76). The number of night shifts worked per month was 3.94 (SD=4.90). The most common specialty was dentistry (n=36, 30%) followed by surgery (n=19, 15.8%) and pediatrics (n=12, 10%). The majority of the participants worked in a metropolitan area or city (n=97,

Table 1: Socio-demographic and practice characteristics of participants.

Frequency (%)	
Female	66 (55.0)
Specialty (top 3)	
Dentistry	36 (30.0)
Surgery	19 (15.8)
Pediatrics	12 (10.0)
Location of practice	
Metropolitan area	53 (44.2)
City	44 (36.7)
Town	14 (11.7)
Rural	8 (6.7)
Practice setting	
Solo practice	10 (8.3)
Small clinic	17 (14.2)
Large clinic/hospital	61 (50.8)
Academic practice	24 (20.0)
Practice-inpatient or outpatient	
Inpatient	21 (17.5)
Outpatient	25 (20.8)
Both	70 (58.3)
Interest in practicing outside of Iraq	105 (87.5)
Safety concerns at workplace (past two months)	82 (68.3)
Ever experienced physical or verbal assaults during work	91 (75.8)
Ever seen co-worker being physically or verbally assaulted during work	96 (80.0)
Mean (SD)	
Age	29.99 (5.51)
Practice years	6.17 (4.89)
Work hours per week	44.30 (21.76)
Number of patients per day	50.84 (62.76)
Number of times of night shifts per month	3.94 (4.90)

N=120

80.9%). Approximately half of the participants worked at a large clinic or hospital (n=61, 50.8%). Nearly 60% of the participants worked both in inpatient and outpatient practice (n=70, 58.3%). The majority of the participants expressed interest in practicing outside of Iraq in the future (n=105, 87.5%). Approximately 70% of the participants had safety concerns at the workplace in the past two months. More than 70% of the participants had experienced physical or verbal assaults at work (n=91, 75.8%). Eighty percent of the participants (n=96) had seen a co-worker being physically or verbally assaulted at work.

Table 2 shows the descriptive statistics of job satisfaction, concerns, and health-related factors. More than 60% of the participants reported experiencing sleep problems in the past two weeks (n=76, 63.3). The average score of stress was 21.72 (SD=5.37). The depression score was 9.70 (SD=5.69). The average self-rated general health score was 2.69 (SD=0.92). The number of days doing physical activity for more than 30 minutes per week was 3.45 (SD=2.24). Among the three satisfaction sub-scales, participants expressed highest satisfaction for career

(mean=2.95, SD=0.93) and least satisfaction for resources (mean=3.64, SD=0.93). The average score of workplace concerns was 3.76 (SD=0.75). The following were top four concerns: Physical or verbal assaults during work (mean=3.93, SD=1.16); health system in Iraq (mean=3.92, SD=1.39); quality of administration of your hospital (mean=3.84, SD=1.24); and patient attitudes or other external influences that negatively affect your medical decisions (mean=3.83, SD=1.21).

Table 3 summarizes the results of regression analysis (Table 3). Lower levels of satisfaction with resources and one's job were associated with higher levels of stress (p<0.05). The following factors were associated with higher levels of depression: fewer work hours per week (p<0.05), sleep problems in the past 2 weeks (p<0.01) and lower job satisfaction (p<0.05).

Discussion

This study examined stress and depression related to job satisfaction and work environments among physicians in Iraq and has three main findings. First, safety and work environments

Table 2: Descriptive statistics of job satisfaction, concerns and health-related factors.

Frequency (%)	
Self-reported sleep problems (past 2 weeks)	76 (63.3)
Mean (SD)	
Perceived stress (range 0-40) ^a	21.72 (5.37)
Depression (range 0-27) ^b	9.70 (5.69)
Self-rated general health (range 1-5) ^c	2.69 (0.92)
Physical activity more than 30 minutes (number of days per week)	3.45 (2.24)
Satisfaction with resources (range 1-5) ^d	3.64 (0.93)
Job satisfaction (range 1-5) ^d	3.14 (0.81)
Career satisfaction (range 1-5) ^d	2.95 (0.93)
Workplace concerns (total) (range 1-5) ^e	3.76 (0.75)
Physical or verbal assaults during work	3.93 (1.16)
Prescribing unnecessary drugs or sending for unnecessary labs	3.47 (1.52)
Safety outside the hospital	3.63 (1.27)
Biased assignment of your duties	3.52 (1.01)
Lack of respect and appreciation from patients and patient families	3.77 (1.29)
Career choice to be a physician/ risks of being a physician	3.77 (1.07)
Patient attitudes or other external influences that negatively affect your medical decisions	3.83 (1.21)
Health system in your country	3.92 (1.39)
Quality of administration of your hospital	3.84 (1.24)
Trustworthiness of your co-workers	3.63 (1.12)
Coordination with other health care professionals such as nurses or pharmacists	3.77 (1.13)

N=120

^a Higher scores indicate higher levels of stress^b Higher scores indicate higher levels of depression^c Lower scores indicate better self-rated health^d Lower scores indicate higher levels of satisfaction.^e Higher scores indicate higher levels of concerns

Table 3: Predictors of perceived stress and depression.

	Perceived stress β	<i>p</i> -value	Depression β	<i>p</i> -value
Female	1.32	N.S.	-0.14	N.S.
Age	0.06	N.S.	-0.03	N.S.
Work hours per week	0.02	N.S.	-0.05	<0.05
Number of patients per day	-0.01	N.S.	-0.01	N.S.
Number of night shifts per month	-0.07	N.S.	0.01	N.S.
Specialty: Dentistry	1.73	N.S.	0.69	N.S.
Practice in metropolitan area	1.53	N.S.	0.15	N.S.
Self-rated health	0.94	N.S.	1.09	N.S.
Physical activity more than 30 min (number of days per week)	-0.04	N.S.	0.07	N.S.
Sleep problem (past 2 weeks)	-0.01	N.S.	4.08	<0.01
Satisfaction with resources	1.58	<i>P</i> <0.05	0.43	N.S.
Job satisfaction	1.74	<i>P</i> <0.05	2.06	<0.05
Career satisfaction	0.73	N.S.	0.91	N.S.
Workplace concerns	1.04	N.S.	1.02	N.S.
Safety concerns in workplace (past 2 months)	-0.97	N.S.	-0.38	N.S.
(Constant)	0.05	N.S.	-0.38	N.S.
<i>R</i> ²	0.49		0.54	
<i>F</i>	4.75		5.77	
<i>P</i> -value	<0.01		<0.01	

N=120

Multivariate multiple regression. *p*-value denotes significance from multivariate regression analysis

N.S.: Not Significant

are major concerns among physicians in Iraq. Second, lower job satisfaction is associated with higher levels of stress and depression. Third, the following factors are also related to higher levels of stress or depression: lower satisfaction with resources, fewer work hours and sleep problems.

These results illustrate many things about the younger generation of physicians in Iraq. First, almost 90% of Iraqi physicians were interested in practicing outside of Iraq. The majority of these physicians were ones who had just graduated or are only in their first couple years of practice therefore making up the future workforce of physicians in Iraq.

These results also confirm previous studies indicating that physicians in Iraq are concerned about safety and their work environment [2,5]. Studies in other countries where physicians often encounter violence in the workplace reported that violence against physicians is related to patient behaviors, practice settings and characteristics, professional roles, physicians' personal demographic characteristics, and not having support to prevent violence [16,17]. Due to these safety concerns, it is important to develop policy and safety measures to improve physician work environments in Iraq in order to make remaining in Iraq more attractive to Iraqi medical school graduates.

Moreover, the results suggest that job satisfaction is an important factor for physician's well-being. While stressors associated with poor job satisfaction may vary across countries, the importance of job satisfaction for physicians' well-being is important in other countries as well [10,18,19]. Low job satisfaction and poor well-being can be a cause of physician turnout [10,19]. Since the majority of study participants

expressed interest in practicing outside of Iraq, without interventions to improve physician job satisfaction and well-being, Iraq will not have enough physicians to maintain current levels of healthcare delivery and will face a critical physician shortage in the future.

In addition to job satisfaction, resources, work hours and sleep problems are associated with stress and depression. A lack of adequate resources has an impact on not only the quality of health care services but also physicians' well-being. In general, longer work hours are associated with higher levels of stress among physicians [20]. However, the results of this study showed the opposite association - fewer work hours were related to higher levels of depression. One possible explanation is that the causal direction may be related to the result of depression - physicians with higher levels of depression may not be able to work for long hours. Another possibility is that more time away from work may mean greater exposure to other stressors (e.g. political situation, family, board exams). In any case, the issue of work hours and depression needs to be further examined. Likewise, while this study found the association between levels of depression and sleep problems, there is no information about factors affecting sleep problems. Future research should identify factors causing sleep problems in order to develop intervention programs for physicians.

While this study provides new knowledge about stress, depression, job satisfaction and work environments among physicians in Iraq, it has limitations. Since this study used an anonymous online survey, there was no way to check the eligibility of the participants. However, this study did not offer

any incentives to participants. Thus, it is very unlikely that it had ineligible participants. Because the link to the survey was forwarded from initial contacts, a response rate is unknown. Additionally, since the total number of the participants was very small, the sample size may not large be enough to generalize the results to the entire breadth of the young physician population in Iraq. Like any cross-sectional research, this study did not identify causal directions among variables.

Despite the limitations, this study presents new knowledge about physician work environments and mental health well-being among young physicians in Iraq. Iraq faces a potentially crippling brain drain situation since 87.5% of the study participants expressed interest in leaving Iraq and are also concerned with safety in the workplace. Physician migration from developing to developed countries is a global phenomenon due to push factors that drive people to move out of their home country and pull factors that offer better opportunities in a host country [21]. But in the case of Iraq, since the percentage of physicians leaving or intending to leave Iraq is very high, it is important to develop strategies to reduce push factors and to increase physician retention. Services such as resiliency training should be available for physicians and medical students. Better policy in the hospital setting to improve the work environment should be implemented.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Ethical Approval

The University of Utah Institutional Review Board (IRB) approved this study.

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