Original Article

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THE CHALLENGES, RISKS, AND CONCERNS PERCEIVED BY IRAQI MEDICAL DOCTORS: A CROSS SECTIONAL STUDY

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ABSTRACT

Background: The current situation of the health system in Iraq, under the difficult conditions the country has been experiencing, generates great pressures on doctors because they are in the field of confrontation between the growing needs of patients day after day and the dilapidated capabilities and government neglect of the health sector with the absence of security and stability and weak law enforcement.The imposition of state authority has led to an increase in violence in the country in general and against doctors in particular. Moreover, there are other pressures that doctors are subjected to, such as security, economic, professional, social, and psychological pressures, which have led to the emigration of a considerable number of doctors or the exposure of some of them to physical liquidation.

Aim: This study was conducted to determine the challenges, risks, and concerns perceived by Iraqi medical doctors, and to explore any possibility of associations to some socio-demographic and professional characteristics of the doctors.

Method: A questionnaire form was structured after reviewing several international forms relevant to exploring the participants' opinions and measuring satisfaction. The form was validated by experts and the approved version was uploaded to the Internet and sent to candidate Iraqi medical doctors through Google Forms. A link to the questionnaire survey was sent to them via doctors' WhatsApp groups. Convenience sample was used to collect data from May 30 to June 17, 2020.

Results: A total of 606 medical doctors from most of the Iraqi provinces sent their responses to the questionnaire. More than 92% of them held serious concerns,such as a tribal threat. Other challenges included being infected with a serious infection, more than 3 quarters had been exposed to violence, more than half of them have been involved in problems with the administrative and/or judicial authorities, more than 35% consider the government department where they work as the party who protects them. More importantly, about 92.7% of the respondents answered that they do not feel safe/secure. The social enhancers seen by most of the respondents were having a law to protect them, owning a house or a piece of land, and/or having an Association that defends them.

Conclusions: The Iraqi medical doctors face considerable physical, economical, psychological, emotional, and social challenges that affect their professional performance and their life. If the same situation remained as such it may lead to the loss of one third of the Iraqi doctors. Especially, after COVID-19 pandemic, many countries are welcoming doctors from abroad, including Iraq. If this is added to the shortage in the doctor-population proportion in Iraq, it means there will be a jeopardizing shortage.

Recommendations: Several recommendations have been put to reduce pressure on the Iraqi medical doctors aiming at improving performance, effectiveness, and efficiency.

Keywords: doctor challenges, violence, Iraqi doctors, risk of infection, economic impacts

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Introduction

Over the past forty years, Iraq has been subjected to exceptional and very harsh conditions that began in 1980 with a fierce war with Iran.The war lasted for eight years, followed by the invasion of the Saddam regime of Kuwait in 1990, resulting in the complete destruction of the infrastructure in Iraq as a result of the war with the international coalition and the subsequent comprehensive inhumane economic blockade, lasted for thirteen years.These culminated with the occupation of Iraq in 2003 by the United States and its allies. A civil unrest complicated by ex-ISIS's invasion of Iraq and this coincided with a severe economic crisis that passed by Iraq after the decline in oil prices at the time[1].

The national situation is currently going through a major economic crisis as a result of the decline in oil prices again, as well as through security instability and an escalation in violence as a result of continuing terrorist threats.These have been worsened by the political and social instability as a result of the popular uprising against corruption and the COVID-19 pandemic after the first cases were recorded in Iraq on February 25, 2020. This was followed by a rapid and sharp increase in the number of cases, and thus so Iraq was on the topofMENA countries in the number of pandemicdeaths and the number of COVID-19 cases when this article was written[2].

The results of all these bloody events during the past four decades were large numbers of accidents, injuries, malnutrition, and other non-communicable and communicable diseases and epidemics. This has gotten worse with the shortage in the necessary supplies for governmental health institutions to continue providing their services with inadequate private health sectors and the absence of a health insurance system. This is accompanied by an increase in the population withno new health institutions or development in theold ones. The above reasons for this deterioration are superadded to the fact that successive governments since 2003 have not madehealth a strategic priority, and budget allocations have not met the needs and aspirations of the population [3].

The deterioration of the health system in Iraq generates great pressures on doctors because they are in the field of confrontation between the growing requirements of patients day after day and the dilapidated capabilities and government neglect of the health sector.The absence of security and stability, weak law enforcement, and the imposition of state authority has led to an increase in violence in the country in general and against doctors in particular. Moreover, there are other pressures that doctors are subjected to, such as security, economic, professional, social and psychological pressures.

This study sought to question doctors' opinions about the pressures and challenges facing them, as medical practice suffers increasing problems in terms of escalating work violence and leaves them feeling dissatisfied[4].

The researchers identified the following challenges, risks, and concerns faced/ felt by doctors:

1. Threats by different social bodies
2. Infection
3. Violence
4. Problems with the administrative and/or judicial authorities,
5. Unavailability of backup
6. Feeling unsafe
7. Unavailability of economic backup (owning a car, clinic, and house, having an additional source of income,and satisfaction with salary)
8. Unavailability of social enhancers for stability

9. Stress applied by the weekly hours of direct communication with the patients
10. Pressure applied by the local media
11. Unavailability of support forissues in the work place
12. Lack of material or moral support.

Threats against doctors in Iraq have been increasing inthe last 17 years. It has been estimated thatmany doctors have been killed in Iraqduring the period from 2003 to 2014. Many of them were killed due to the increasing power of tribesagainst the official governmental system[5].Almost always, such crimes are preceded by threats.

Because of their line of work, doctors and other health staff are exposed to the risk of being infected with several communicable diseases such as respiratory diseases, blood-borne diseases, and other nosocomial infections [6].

Violence in the workplace is one of the most serious issues affecting the healthcare sector staff. The incidence of violent behavior towards healthcare workers is increasing worldwide[2]. Emergency care service is one of the professions most affected by this risk[7]. Suffering or fearing aggression will adversely influence the attitudes of doctors to their work[8].Numerous workers have pointed towards adverse psychological sequalae in doctors exposed to violent incidents at work. These include post-traumatic stress disorder[9], anxiety and depression[10], and fearfulness[11]. Moreover, facingaggression from the patients can lead to changes in the doctor's behavior such as increased prescribing or referral ofpatients to more secondary care. The perceived vulnerability to further violent episodes may lead the doctors to seek long-term sick leave, and lead topoor staff morale and higher than necessary staff turnover[9][12].

The problems with the administrative and/or judicial authorities, is termed in the medical sociology literature as doctors-administrationconflicts [13]. This may end at the court, which may also be the fate of conflicts between the doctor and the patients and/or their relatives[14].

Logically, due to the possibility of profession-related threatening, violence, "arbitrary" decisions, other stressors like the weekly hours of direct communication with the patients, and the pressure applied by the local media,there is a perceived need for backup. According to the Iraqi culture, this backup and support can be governmental (the health and judicialauthorities) or non-governmental (the Association of Doctors)[15][16].This backup and support, the researchers believe,are supposed to provide a safe feeling among the doctors. Moreover, the availability of economic backup (owning a car, clinic, and house; having an additional source of income and satisfaction with salary),availability of social enhancers for stability, availability of supportive issues in the work place environment, and receiving material or moral support may strengthen feeling safe.

In Iraq, there is a massive shortage and limitation of the current knowledge in this field, where there are more complex circumstances and challenges that deserve to be considered. These need to be determined and classified according to the priorities and severity that they represent to the doctors, in order to recommend the priorities in the treatment of theproblems facedby the doctors in the country.

Aim and objectives

This study was conducted to determine the challenges, risks, and concerns perceived by Iraqi medical doctors,and to explore any possibility of associations to some

socio-demographic and professional characteristics of the doctors.

Participants and method

A questionnaire form was structured after reviewing several international forms relevant to exploring the participants' opinions and measuring satisfaction. The form was validated by three local relevant research experts. Hence,in the context of the emerging need that had been discussed by the Iraqi Association for Medical Research and Studies (IAMRS), the scientific committee of IAMRS approved the research team to conduct the study after reviewing the ethical and scientific background of the project.

Before conducting the research process, to ensure an acceptable level of data validity, the form was tested in a pilot study conducted on 20 medical doctors who carry the same characteristics of the targeted population, using the same mechanism of the study.

The approved version was uploaded to the Internet and sent to the candidates througha Google Formthat cannot be re-submitted and had a mandatory questionnaire.Different medical doctors' WhatsApp groups had been targeted; most of these groups are constructed on provincial geographical basis. Few are constructed to include national members. The form had been distributed via these groups and all received responses were considered for the analysis. Gathering responses continued for around two weeks (from May 30 to June 17, 2020.

Responses were automatically collected to a database sheet, translated, and coded to be entered to an electronic statistical package andanalyzed by percentages. To test for any possible statistical associations, SPSS software, version 23, was used and Chi^2 test was applied. An association with p-value ≤ 0.05 was considered statistically significant.

In addition to the challenges mentioned above in the Introduction, the following indicators were also analyzed to test doctor's satisfaction:If they were to go back in time, what is the likelihood of choosing medicine as a profession and/or the same specialty again and if they would be willing to emigrate. Moreover, the respondents were asked about the issues that if being made available will make them happy.

The researchers followed the following ethical requirements during the whole period of the study: informed consent, privacy, anonymity, confidentiality, and honest recording of data.

Results

Intotal, 608 responses were received. Two responses were excluded because the respondents failed to provide relevant answers. Intotal, the responses of 606 medical doctors from most of the Iraqi provinces were considered.

Table (1) shows that the study respondents have the following socio-demographic characteristics:
Around two-thirds of them were males, more than 83% of them were 50 years old or less, and regarding the province of residence and work, more than 82% of the respondents were from provinces outside Kurdistan region thathave not been occupied by Ex-ISIS terrorists.

Table (1): Some socio-demographic characteristics of the respondents

Characteristic	Frequency	Percent
Gender:		
Male	408	67.3
Female	198	32.7
Age group/ year:		
Less than 31	138	22.8
31–40	161	26.4
41–50	206	34.0
51–60	78	12.9
More than 60	23	3.8
Geographical distribution:		
Non-Ex-ISIS occupied	498	82.2
Kurdistan	48	7.9
Ex-ISIS occupied	60	9.9
Total	**606**	**100.0**

Table (2) shows that the study respondents have the following professional characteristics:

About one third (32.2%)of the respondents had a duration of experience that ranges between 1 to 10 years; the duration of experience of about 38% was 11–20 years; more than one fifth had 21–30 years; more than two-thirds hold some sort of specialty qualification; 30.4% were still within the non-seniority stage, and more than half of the specialties were nearly equally distributed between internal medicine and surgical specialties.

Table (2): Professional characteristics of the respondents

Characteristic	Frequency	Percent
Number of work years:		
1–10	196	32.3
11–20	233	38.4
21–30	130	21.5
31–40	38	6.3
41–50	7	1.2
More than 50	2	0.3

Qualification:		
MBChB:	**218**	**35.97**
Intern	67	11.06
Rural graduate	33	5.44
Permanent resident/ Branch practitioner	84	13.86
General practitioner	32	5.28
Retired general practitioner	2	0.33
Specialist:	**388**	**64.03**
Diploma	59	9.74
Board	196	32.03
Master	37	6.31
Doctorate	50	8.41
Sub-specialty	35	5.99
Retired specialist	11	2.10
Specialty:		
Non-specialized intern/ Rural graduate	100	16.18
Basic, laboratory, and community	44	7.12
medicine	159	25.73
Internal medicine	153	24.76
Surgical specialties	50	8.09
Medical imaging and radiotherapy	71	11.49
Family doctors and general practitioner	17	2.75
Anesthesia	24	3.88
Dentistry and maxillofacial		
Total	**606**	**100.0**

Table (3) shows that more than 92% of them hold serious concerns (the most frequent one was a tribal threat related to the medical practice), about 30% of the respondents had been infected with one or more serious infections, more than 3 quarters of them had been exposed to some sort of verbal and/or physical violence, more than half of them have been involved in problems with the administrative and/or judicial authorities during their career life, more than 35% consider the government department wherethey work as the party who protects and defendsthem in case of problem occurrence, and finally about 92.7% of the respondents answered that they do not feel safe/secure.

Table (3): The challenges, risks, and concerns faced/ felt by the 606 participants

Question:	Frequency	Percent
What is the single most serious challenge that is of concern to you?		
I have no specific concerns	46	7.59
A tribal threat	221	36.47
A work-related infection	111	18.32
An “arbitrary” administrative/ managerial decision	106	17.49
Appearance in court due to a patient/ relative’s complaint	74	12.21
Threatsfrom gangs	35	5.78
Others	13	2.15

History of being infected because of work:*		
None	418	68.98
COVID-19	26	4.29
Hepatitis	11	1.82
TB	9	1.49
Others	157	25.91
History of exposure to violence:*		
I have not exposed to violence before	147	24.26
Insult and verbal abuse	292	48.18
Threat	272	44.88
Defamation of any kind	159	26.24
Beating	55	9.08
Problems with the administrative/ judicial authorities:*		
Have not faced such a problem before	279	46.04
Facing a Board of Inquiry	217	35.81
Administrative penalty	156	25.74
Faced police interrogation	109	17.99
Appearance in court	78	12.87
Detention or arrests	6	0.99
Who do you have to protect and defend you in case of problem occurrence?		
The government department, where the doctor works	216	35.64
The tribe to which the doctor belongs	134	22.11
Association of doctors	91	15.02
Iraqi judiciary system	79	13.04
The private medical institution, where the doctor works	5	0.83
Others	81	13.37
Feel unsafe:	562	92.7
Total	**606**	

* A respondent may tick more than one answer

In Table (4), it can be noticed thatnearly half of the participants have their own house, nearly two thirds of them have a private car, more than 3 quarters of them additionally have a private clinic or work in a private medical institution.For about21.9% of the respondents, the governmental salary is the only source of their monthly income,which was considered insufficient by more than 70%.More than 93% consider their social enhancers as one or more of the following:having a law protect them, owning house/land, orhaving an Associationto defend them

Table (4): The economic challenges faced by the participants

Question:	Frequency	Percent
Do you:*		
Own a car?	403	66.50
Own a clinic?	321	52.97
Own a house?	287	47.40
Have a private work other than the clinic?	152	25.08

What is the percentage that your salary forms out of your total monthly income?		
Less than 50 percent	166	27.4
50 percent or above	307	50.7
100 percent	133	21.9
Finding the salary insufficient:	**425**	**70.1**
What do you considerthe social enhancer for your stability?		
The existence of a law to protect them	122	20.13
Owning a house or a piece of land	40	6.60
The existence of anAssociation defends them	13	2.15
All of the above	391	64.52
Other	40	6.60
Total	**606**	

It is clear from Table (5) that the respondents have contact with the public more at governmental medical facilities than at private medical facilities;more than 72% consider that the media plays a negative role in their life; more than 62% of the respondents do not feel convenient or respected. Nearly 40% answered that they will not choose medicine again if they returned to the pre-university age, while more than half of them seem satisfied with their specialty. More than 85% think of emigration (either always or sometimes); only 64% answered that they received thanks from their patients, 13% were granted a piece of land by the government, and not more than 4% received financial reward. Nearly 97% of them feel happy with non-financial non-material incentives.

Table (5): The social influences which surround the participants

Question:	Frequency	Percent
How many hours do you spend, weekly, in direct communication with the public at, Governmental health facilities?		
< = 5	86	14.2
6–10	77	12.7
11–15	75	12.4
16–20	110	18.2
>= 21	258	42.6
Private medical facilities?		
< = 5	278	45.9
6-10	69	11.4
11–15	75	12.4
16–20	83	13.7
>= 21	101	16.7
Feelthe local media plays a positive supportive role?	440	72.6

Which of the following supportive issues is available at the work place environment?*		
Respect, appreciation, and care by the administration/management	150	24.8
Education and training courses	98	16.1
Medical devices and essential equipment needed	68	11.2
Convenient and comfortable working environment	52	8.6
None of that	379	62.5
If you could go back in time, youwould choose:		
Medicine as a profession again	361	59.6
The same specialty	317	52.3
Willing to emigrate:		
No	90	14.9
Sometimes	318	52.5
Always	198	32.7
Have you ever received material or moral support such as the following:*		
Thanks, from the patient	388	64.0
An appreciation letter from the department	308	50.8
Thanks, from a non-governmental organization	170	28.0
A piece of land from the state	80	13.2
Financial reward	24	3.9
None of that	128	21.1
What makes you happy?		
Conscience comfort	271	44.7
Success in the profession and excellence	167	27.6
Thankfulness and gratitude of the patient	75	12.4
Increasing one's experience and skill	69	11.4
A financial reward	7	1.2
Thanks, from the institute where they work	4	0.7
Other	13	2.2
Total	**606**	

* A respondent may tick more than one answer

Table 6 shows some of the reported challenges, risks, and concerns experienced by the participants by gender, age, and residence.

With respect to experience of violence, verbal violence, with or without physical violence, was more frequently reported by male doctors, except for defamation, deliberately separated from verbal violence as it is a violence that does not involve face-to-face communication, which was more frequently reported by female doctors. Moreover, no exposure to violence was more reported among females.The overall association of types of violence and gender was statistically significant (P=0.005).

With respect to age, younger doctors are more likely to facephysical violence while older doctors are likely to have verbal violence. The association of age and type of violence was statistically significant (P= 0.001).

For administrative investigation and penalties, females are more likely to beexposed to investigation and penalty at administrative level while males are likely to be involved in police and legal investigation (P=0.0001).Regarding age, younger persons are more likely to be investigated at an administrative level while older persons were more likely to experience police and legal investigation.

The last section of Table 6 describes the main perceived backup the doctors have when facing problems. In all the nominated areas, the government department where the doctor works was the main trusted doer for backup, followed by the tribe, except in Kurdistan region, where the role of tribe seems the least involved.

Table (6): The challenges, risks, and concerns faced/felt by the participants

Characteristic						Sig.
Violence						
	Gender					
	Male			**Female**		
1. At least one type of verbal violence2. Physical violence 3. Defamation 4. None	54.3% 6.7% 17.2% 21.8%			37.8% 5.0% 28.8% 28.3%		Chi^2= 20.41, Sig.= 0.005
	Age group (year)					
	< 31	**31- 40**	**41- 50**	**51- 60**	**> 60**	
1. At least one type of verbal violence 2. Physical violence	12.3% 31.8%	14.4% 31.2%	16.0% 17.4%	17.9% 11.5%	26.1% 12.5%	FET= 64.37, Sig.= 0.001
Problems with the order						
	Gender					
	Male			**Female**		
1. At least one submission to investigative committees, or one administrative penalty 2. Noexposureto any of the problems 3. Had to visit a police station, detention or arrests, or arraignment	20.4% 40.2% 39.4%			26.8% 54.5% 18.7%		Ch^2= 30.82, Sig.= 0.0001
	Age group (year)					
	< 31	**31- 40**	**41- 50**	**51- 60**	**> 60**	
1. Havenot been exposed to any problem 2. Administrative penalty 3. Arraignment, review police stations	55.1% 13.8% 3.6%	36.2% 11.2% 11.9%	43.2% 7.3% 15.0%	47.4% 3.8% 21.8%	52.2% 0.0% 21.7%	FE= 72.73, Sig.= 0.0001
Who do you have when you faceproblems?						
	Residence					
1. Your government	**Non Ex-ISIS attacked**		**Kurdistan**	**Ex-ISIS occupied**		

department	36.8%	27.1%	33.3%	Chi^2= 18.99, Sig.= 0.04
2. Your tribe	21.5%	16.7%	31.7%	
3. Others	13.3%	25.0%	6.7%	

Table (7) shows the associations that may be linked to the economic challenges faced by the participant doctors and the material/financial aspects that the participants consider social enhancers:

1. Female doctors and young male doctors statisticallysignificantly do not have their house or clinic.
2. Those who least own a car are generally doctors from Kurdistan region, followed by doctors from Ex-ISIS occupied provinces.
3. Regarding the salary percentage ofthe total income,statisticallysignificantly those whosesalary constitutes 100% of their monthly income are females, younger doctors, and doctors from Kurdistan region.
4. Those who consider their salary sufficient are mostly male doctors, older doctors, and doctors from Ex-ISIS occupied provinces.
5. Statisticallysignificantly, all the mentioned incentives package, precisely, the application of a law to protect doctors,areconsidered the main social stability enhancers by male doctors, while for female doctors, owning a house or a piece of land are considered the main social stability enhancers.

Table (7): The economic challenges faced by the participants and the material/financial aspects that the participants consider them as social enhancers

	Characteristic					Sig.
Owning a car	**Residence**					
	Non-Ex-ISIS attacked		**Kurdistan**	**Ex-ISIS occupied**		
	70.5%		31.7%	54.4%		Chi^2= 29.39, Sig.= 0.0001
Owning a house	**Gender**					
	Male			**Female**		
	54.2%			33.3%		Chi^2= 23.21, Sig.= 0.0001
	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
	13.8%	25.0%	66.5%	88.5%	91.6%	Chi^2= 196.62, Sig.= 0.0001
Owning a clinic	**Gender**					
	Male			**Female**		
	65.7%			26.8%		Chi^2= 81.05, Sig.= 0.0001
	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
	1.4%	42.5%	78.6%	87.2%	87.5%	Chi^2= 256.77, Sig.= 0.0001
	Residence					

	Non Ex-ISIS attacked		**Kurdistan**	**Ex-ISIS occupied**		
	55.2%		25.0%	56.7%		Chi^2= 16.42, Sig.= 0.0001
Salary percentage from the total income						
	Gender					
	Male			**Female**		
1. <50 percent and ≥50 percent 2. 100 percent	76.7% 23.3%			49.0% 51.0%		Chi^2= 46.97, Sig.= 0.0001
100 percent	**Age (year)**					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
	60.1%	42.5%	15.5%	11.5%	16.7%	Chi^2= 111.36, Sig.= 0.0001
	Residence					
	Non Ex-ISIS attacked		**Kurdistan**	**Ex-ISIS occupied**		
	30.5%		50.0%	33.3%		Chi^2= 12.16, Sig.= 0.016
Salary is sufficient	**Gender**					
	Male			**Female**		
	33.6%			22.2%		Chi2= 8.21, Sig.= 0.004
	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
	4.3%	21.9%	42.2%	46.2%	70.8%	Chi^2= 92.35, Sig.= 0.0001
	Residence					
	Non-Ex-ISIS attacked		**Kurdistan**	**Ex-ISIS occupied**		
	30.1%		8.3%	45.0%		Chi^2= 17.20, Sig.= 0.0001
Social stability enhancers						
1. The application of a law to protect them or all incentives 2. Owning a house or a piece of land or other	**Gender**					
	Male			**Female**		Chi^2= 12.15, Sig.= 0.033
	89.2%			81.3%		
	10.8%			18.7%		

Table (8) presents some aspects of the participants social environment. Junior doctors think of emigration more than older ones, feel less safe andfindmedia performance negative.Receiving financial rewards and official thank youletters from the medical institution they work in are the main things thatmake them happy. Most of themanswered that they would have chosen the same field of specialty/practice if they could go back in time, and that finding success in profession and excellence is the main thing that makes them happy. Also, they have a significantly greater weekly direct communication with patients at the governmental work. They do not look for conscious comfort asmuch as older doctors do.

Male doctors practice private work significantly more than females; their weekly direct communication with patients at the private work issignificantly greater than females, and they are lesswilling to migrate than females. All the incentives mentioned seem significantly non-satisfying to female doctors compared to males and to doctors of a younger age group.

Doctors from Kurdistan and Ex-ISIS occupied areasmentioned that if they could go back in time, they would have not chosen medicine as a profession. This was statistically muchhigher than doctors from non-ISIS attacked provinces. Doctors from the Kurdistan region are the least whofind media performancesupportive.

Table (8): The social environment which surrounds the participants

	Characteristics					**Sig.**
Working private	**Gender**					
	Male			**Female**		
	30.4%			14.1%		Chi^2= 18.73, Sig.= 0.0001
	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
	10.9%	20.6%	36.4%	32.1%	16.7%	Chi^2= 37.36, Sig.= 0.0001
Willing to emigrate						
Sometimes/always	**Gender**					
	Male			**Female**		
	82.6%			90.4%		Chi^2= 7.47, Sig.= 0.024
No	**Age (year)**					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
	8.7%	10.6%	19.9%	17.9%	25.0%	FE= 34.38, Sig.= 0.0001
Weekly direct communication with the patients at the private workplace						
1. 5 hours or less 2. > 5 hours	**Gender**					
	Male			**Female**		
	35.8% 64.2%			66.7% 33.4%		Chi^2= 53.09, Sig.= 0.0001

	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
21 or more	10.1%	9.4%	26.7%	16.7%	16.7%	FE= 93.01, Sig.= 0.0001
Weekly direct communication with the patients at governmental health facilities						
	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
21 hours or more	70.3%	41.9%	31.6%	28.2%	29.2%	FE= 89.91, Sig.= 0.0001
The forms of support available at work-place environment						
	Gender					
	Male			**Female**		
1. All incentives 2. None of the incentives	72.4% 56.9%			36.7% 72.2%		FE= 22.66, Sig.= 0.007
	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
None of the incentives	79.7%	68.1%	51.5%	47.4%	54.2%	FE= 93.90, Sig.= 0.0001
	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
Feeling safe	5.1%	3.1%	7.8%	14.1%	20.8%	FE= 19.69, Sig.= 0.001
	Age (year)					
	< 31	**31- 40**	**41- 50**	**51- 60**	**> 60**	
Media positivity	21.7%	20.0%	33.5%	35.9%	29.2%	Chi^2= 13.79, Sig.= 0.017
	Residence					
	Non Ex-ISIS attacked		**Kurdistan**	**Ex-ISIS occupied**		
	28.1%		12.5%	33.3%		Chi^2= 6.55, Sig.= 0.038
	Residence					
	Non Ex-ISIS attacked		**Kurdistan**	**Ex-ISIS occupied**		
Will notchoose medicine again	38.2%		45.8%	55.0%		Chi^2= 6.94, Sig.= 0.03
	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	
Will choosethe same specialty	58.7%	60.0%	51.5%	29.5%	45.8%	Chi^2= 24.03, Sig.= 0.0001
What makes you happy?						
	Age (year)					
	< 31	**31–40**	**41–50**	**51–60**	**> 60**	

1. A financial reward	4.3%	0.0%	0.5%	0.0%	0.0%	FE= 66.53, Sig.= 0.002
2. Conscience comfort	34.1%	45.0%	43.2%	65.4%	50.0%	
3. Thanks from the institution	2.9%	0.0%	0.0%	0.0%	0.0%	
4. Success in profession and excellence	29.7%	30.6%	29.6%	14.1%	20.8%	

Discussion

As the sample is an Internet-basedone, the results need to be treated carefully when being interpreted; the available sampleis excellent in generating hypothesis for further investigation, via random sampling, to be able to generalize the conclusions with high precision[17].As the online questionnaire was distributed across all regions of Iraq, the collected data reflect a considerably reliable pattern consistent with the targeted population. Nevertheless, the respondents were not matched from gender, age, province of residence, number of work years, qualification, and specialty distributions point of view.However, the results have provided enough information to reasonablyform a hypothesis suitable to be tested in depth.

More than 90% of the respondents perceive a serious challenge that is of concern to them. The top concern is a tribal threat that can occur when there is a doctor-patient conflict. This is understandable with the high incidence of threats directed daily toward the Iraqi doctors[18],probably dueto miscommunication. However, it seems that this miscommunication is prevalent in other communities [19].

The next concern in the list isgetting a work-related infection.Especially, when the proportion of work-acquired infection, which was documented among the respondents of this study was about 31% and the mentioned diseases, that they were found to be more frequent, were COVID-19, hepatitis, and tuberculosis. Infection has been a concern, as it is known internationally that the health care staff are more prone to be infected than the rest of thepopulation [20][21].

The third concern is being exposed to an “arbitrary” administrative/managerial decision. This is probably because the doctors believe that most of the managerial decisions madeto solve daily work problems, are made on subjective overhasty non-scientific non-evidence bases; therefore, these decisions come against the doctor’s interest. This is a worldwide problem prevalent in any hospital; however, theoccurrence varies from one country to another depending on the differences in social culture and nature of the governmental system and country legislations. Researchers have recommended several actions to reduce this conflict, including the doctors while making the decisions relevant to them as well, explaining carefully the background legislations, exploring the doctors' satisfaction periodically [22], and establishing and enforcing the implementation of codes of conduct for all parties in the health system [23].

The proportion of previous exposure of the respondents to one or more of all types of violence was 75.74%,and this is a little bit higher than what was reported in Basra in 2014 (73.3%). Internationally, this study figure seems close to figures documented in other countries [24]. In Saudi Arabia, it was reported that 48.6% doctors were exposed to violence during

work in 2019[25]. In Norway, the numbersseem to be a bit milder;50.6% doctors haveexperienced threats at least once and 23.9% experienced real acts of violence at least once, in 2014[26]. This probably can be attributed to the difference in culture and the power of the law. However, the percentage is still high even in European communities.

A serious fate of the doctor-management/administration and doctor-patient conflicts, as mentioned above, is that about 54% of the respondent doctors faced at least one considerable problem with the administrative and/or judicial authorities. This can be an indication of the deficiency in the mechanisms and processes followed by the Iraqi medical education's institutions and Ministry of Health to continuously educate and train the medical staff to follow the codes of conduct and continuously ensure doctors' satisfaction.

The Association of Doctors and the Iraqi judiciary system came at the bottom of the list of the bodies;the doctors had to form a backup to protect themselves from abuse. This may refer to the low level of trust and miscommunication between the respondent doctors and these two bodies. The low-level trust in the judicial system among doctors has been documented in research from other countries [19].The tribal role, in protecting doctors, seems crucial for the respondents. That is probably because of the looseness of application of laws, weakness of authorities and/or the inflation of the tribe social position and role [27].

The high percentage (92.7%) of those who do not generally feel safe can be linked to the highly variable and highly prevalent incident challenges, risks, and concerns perceived, that are documented in this study. For the purpose of comparingchallenges, risks, and concerns faced, a study conducted in Pakistan mentioned a list of challenges, which look milder than those found in this study. These included shortage in opportunities, high quantitative and qualitative work duties, workplace violence, empowerment, and lack of incentives[28].Another study in Indonesia linked feeling unsafe to payment level and autonomy only[29].

Having financially supportive private work in addition to the governmental work in more than 3 quarters of the respondents has been reflected in more than two thirds of them owning a car and about half of them owning a house. This is supposed to help in improving satisfaction and feeling ofsafety. A study in Turkey found that owning a house and a car had resulted in significant reduction in the burnout level[30]. Only about one-fifth of the respondents depend totally on their salary. However, about 30% of them are satisfied with their salary. This is close to what was reported by Medicus survey, which documented that 35.77% of the surveyed doctors were satisfied with their income, but it is a bit far from the results of the Medscape survey, when about 54% of the surveyed doctors were satisfied with their income[31].

The main enhancer the doctors believe they badly need is the existence of an effective efficient law, which can protect them from violence and"arbitrary" treatment by the community and the health management offices and directorates. This may refer to their suffering from the faced challenges and the risks and concerns documented in this study and refers to a situation wherethe challenges and risks are real and effective. They consider it an enhancer that may increase their satisfaction and reduce their suffering.Some countries, whichsuffer from these widely prevalent challenges, have promulgated new strict

legislations to punish those who attack health professionals[32]. In other countries, there are calls for emergency legislations to protect the doctors[33].

As communicating with and contacting the healthcare service users' needs physical and psychological efforts and communication skills, the increase in the number of patients can be a source of doctor stress, burnout, and/or dissatisfaction. The respondent doctors have contact with the public more at the governmental medical facilities (when about 42.6% of them communicate for about 4 hours per day) than having such a contact at the private medical facilities (about 45.9% communicate for about 1 hour per day). A study conducted by the Physicians Foundation in USA found that doctors spend 10 hours per day during their work to communicate with about 20 patients per day[34]. Although USA doctors on average spend time about 2.5 times more than the respondent doctors in the current study, they definitely communicate with much less patients[35].

About 3quarters feel the Iraqi media play a negative role in their life. This goes with the international research, which documented that media can play a negative role that can be a risk/causative factor to increase violence against medical care staff[19]. Similar claim aboutthe media is raised in Iraq.

A high proportion of the respondents do not feel convenient, comfortable, or respected by the management of the place of work, and this probably plays a role in their non-satisfaction or burnout[36][37].

Nearly 40% answered that they will not choose medicine again if they returned in time to the pre-university age, while more than half of them seemed satisfied with their specialty.It is considered a low proportion compared to the findings of a study conducted in China, which found that about 76.1% would not have chosen the medical profession as they had been more aware of the challenges, although the respondents were not just doctors;they weremostly nurses[38].

The proportion of respondent doctors who think of emigration (either always or sometimes) is extremely high; however, we find it logical that not all of them will emigrate.However, this high percentage may refer to the level of dissatisfaction among them. The proportion documented in this study is much higher than the proportion estimated earlier (50%)[39]. The problem of emigration of medical doctors is an international one, due to many reasons that can be linked to non-satisfaction or burnout[40], but the proportion of emigrating doctors from Iraq and of those who consideremigration is non-reasonably high.

The other factor that may constitute a challenge that can lead to non-satisfaction and/or burnout is thata high percentage of respondents have not received material and/or moral support alternatives mentioned in the study.However, nearly, all of the respondents mentioned that non-financial non-material incentives are enough to make them happy, which refers to improving their satisfaction and their professional, psychological, and social wellbeing [41].

Limitations

When the socio-demographic and professional backgrounds associations to the challenges, risks, and concerns were sought, it was found that there is a significant statistical association with gender, age, and residence. However, the importance of these associations arequestionable as, in addition to the non-representativeness of the sample mentioned above, the comparison subgroups were non-matched andno measures were taken to correct for

participant demographics;this might create some confounding.

Conclusions

The Iraqi medical doctors face considerable physical (ex: violence), economical (ex: housing and salaries), psychological (ex: media pressure), emotional, and social (tribal threats) challenges that considerablyaffect their professional performance and their life, causing dissatisfaction, burnout, and continuous intention to leave the country.

Regarding emigration, if the same situation remains without any improvement, it may lead to loss of a substantial percentageof Iraqi doctors in the near future. Especially, after the COVID-19 pandemic, many countries are welcoming doctors from abroad, including Iraq.If this is added to the shortage in the doctor-population proportion in Iraq, there will be a jeopardizing shortage.

Recommendations

The researchers raise the following recommendations to the Government of Iraq and the non-governmental organizations, including the Medical Association, to reduce pressure on the Iraqi medical doctors aiming at improving performance, effectiveness, and efficiency:

1. The Iraqi government needs to expedite the enactment of an effective health insurance law in order to contribute to the development of health services and reduce the burden on doctors as a result of the current poor health services.
2. The Ministry of Health and the private health sector institutions are responsible for insuring and protecting the doctor from dangers arising from his work, such as infection, violence, and medical errors. Moreover, it is seriously needed to activate the Doctors Protection Law and its implementation procedures by the Government of Iraq.
3. There needs to be an increase in governmental spending on developing and modernizing the public health sector to eliminate the gap with neighboring countries at least, in the level of health services.
4. The Ministry of Health needs to improve working conditions in health institutions.
5. The Iraqi government needs to fundamentally review the system of salaries and wages earned by doctors and increase them in a way that guarantees the physical and psychosocial stability of the doctor and prevents them from emigration.
6. The Ministry of Health needs to establish a clear and effective system for rewarding featured doctors.
7. The Ministry of Health, Association of Doctors, and judiciary authorities need to work jointly to optimize judiciary-doctor relationship to improve the doctors' trust with the judiciary system more than trusting other social parties.
8. Professional training and development courses for doctors need to be held continuously, preferably outside their institutions, as a measure to change the stressful work environment.
9. Governmental and investment efforts to make the private sector able to help reduce the momentum from the public sector needs to be encouraged.
10. The Communications and Media Commission, the Ministry of Health, the Ministry of Culture, the Iraqi Media Network and the Association of Doctors need to adopt a major project that aims to changethe media orientation to spread sober health culture and support the work of doctors.
11. Medical colleges need to undertake the measures of a practical teaching curriculum for their students in order

to develop their capabilities for effective social communication and working under pressure and during crises.

12. Students need to be admitted to medical colleges based on the geographical area, so the outstanding students in each governorate are accepted in the colleges according to their needs.

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