RESEARCH ARTICLE

Prevalence of drug-related problems or abuse among physicians and pharmacists working at Al-Karkh and Medical City Directorates based on DAST-20

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ABSTRACT

INTRODUCTION: The World Health Organization (WHO) estimates that harmful or dependent drug users are about 35 million worldwide. Healthcare professionals are among those with high rates of workplace drug abuse: prescribed, over-the-counter, or illicit drugs. Work anxiety, stress, easy access to drugs, and increasing pressure due to health crises like pandemics and emergencies are among the causes of this high rate.

OBJECTIVE: By using the drug abuse screening test (DAST-20), we will measure the prevalence and severity of drug-related problems or abuse among physicians and pharmacists working at the teaching and general hospitals in Al-Karkh and Medical City Directorates in Baghdad and to find the association between the severity and the participants' sociodemographic criteria.

METHODS: An analytic cross-section study was conducted in teaching and general hospitals in Al-Karkh and Medical City Directorates in Baghdad from 1 July to 30 September 2023. The target was physicians of all ranks and pharmacists who work at these hospitals. We used the drug abuse screening test (DAST-20) to measure the extent of having drug-related problems or abuse. The sample size was 481 and was collected using multistage and stratification techniques. Analysis for significance was conducted by chi-square and standardized residual.

RESULTS: The response rate was 82.5% (397 respondents). Low, none, and intermediate levels of drug-related problems or abuse were reported in 219 (55.2%), 156 (39.3%), and 20 (5%), respectively. A significant association were noted between work experience of 5 years or less and being a pharmacist with a low level of drug-related problems or abuse; the p-values were 0.004 and 0.012, respectively.

CONCLUSION: More than half of the participants in this study have low levels of drug-related problems or abuse. Having work experience of five years or less and a pharmacist job title are more prone to have low or intermediate levels of drug-related problems or abuse.

Key words: Drug abuse, DAST-20, pharmacists, physicians.

INTRODUCTION

Provision of healthcare is a demanding job that can impact the physical and mental well-being of the medical staff. One of the highest rates of drug abuse is among healthcare professionals.[1]

Drug abuse is the use of prescribed or over-the-counter drugs in excessive amounts or for purposes other than those for which they are meant. The most common substances abused are alcohol, benzodiazepines, illicit drugs, opiates, sleeping pills, and stimulants. Drug abuse may lead to physical, emotional, social, and job-related problems.[2]

World Health Organization (WHO) estimated that 35 million persons are affected by drug use disorders, either harmful patterns of drug use or drug dependence. A part of these disorders is due to the non-medical use of prescribed drugs such as synthetic opioid analgesics, anxiolytics, hypnotics or psychostimulants.[3]

Worldwide, 1.4 million out of 11 million

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who inject drugs live with HIV and 5.6 million with hepatitis C. More than 42 million years of healthy life, Disability-adjusted life years (DALYs), are lost due to drug abuse, making up about 1.3 % of the global burden of diseases. Half a million, 350 males and 150 females, die annually due to drug abuse. Recently, the COVID-19 pandemic has been shown to increase the abuse of drugs due to worsening anxiety and stress.[4,5]

A stressful work environment makes healthcare providers vulnerable to drug abuse. About 8-15 % of doctors, nurses, and pharmacists abuse or misuse drugs in the workplace.[6] Healthcare workers often explain turning to drugs as a self-medication strategy for the anxiety and stress mitigation associated with their job. Hospital workers have easy access to drugs, especially painkillers, making them more prone to abuse prescription drugs than illicit drugs or alcohol abuse.[7] However, the American Addiction Centers has reported that many physicians diagnosed with substance dependence have a history of prescription drug abuse.[8] Studies have found that the rate of substance abuse is higher among workers in the stressful field of medicine, so the rate of drug abuse in emergency unit doctors is three times that found in the medical field on average.[7]

Drug abuse is a growing public health problem worldwide, including in the Arab countries. However, data describing drug abuse in Arab countries are still limited.[9] At a community level and according to the National Household Survey of Drug Abuse in Iraq conducted on 3200 adults over 18 years in all Iraqi governorates in August 2015, 1.1 % abused anabolic steroids and 1 % benzodiazepines as a first rank. Benzhexol and allermine are in the second rank, with 0.05% for each. For substance abuse, only one participant reported using injectable psychoactive substances (IPS), and 2% admitted that they know persons using IPS; Cannabis was the commonest IPS used in 0.2%, followed by Amphetamines and Opiates, 0.1% for each, and none of them were females.[10]

Doctors and other healthcare professionals worldwide, even before the COVID-19 pandemic, work exhaustively; a study in Baghdad has shown that 56 % of physicians in 2019 had burnout syndrome.[11] However, no data is present about drug abuse among them.

The objectives of this study is to estimate the prevalence and severity of drug-related problems or abuse measured by the drug abuse screening test (DAST-20) among physicians and pharmacists working at teaching and general Hospitals in Al-Karkh and Medical City Directorates in Baghdad and to determine the association of this severity with some sociodemographic features of the participants.

METHODS

Setting and study design: A cross-section study with analytic elements was conducted in Baghdad, the capital of Iraq and the second-largest city in the Arab world after Cairo. In 2020, 8500000 persons live in Baghdad, representing about 21.3% of the Iraqi population. [12,13] It is served by three health directorates: Al-Rasafa, Al-Karkh and Medical City. The study was conducted from 1 July to 30 September 2023, and data was collected from August 7-23, 2023.

Ethical consideration: The Central ethical committee at the Ministry of Health has approved the study proposal. We took the agreement of Al-Karkh and Medical City Directorates of Health to conduct the study. The aims of the study were explained to all participants, and we stressed that participation is voluntary without any consequences and that the answer sheet is anonymous, confidential, and will not be used except for this research.

Study population: The targeted population of this study was doctors of all ranks (juniors, senior house residents, and specialists) and pharmacists who work at the teaching and general hospitals of Baghdad Al-Karkh and Medical City health directorates. The total number of the targeted population was 3875, according to the records of these two health directorates. [14,15] Those who were working at tertiary centres were excluded from the study.

Study sample size and sampling methods:

Sample size at 95% confidence interval, 5% margin of error, a desired precision of 5%, and a probability assumed to be 50% (unknown prevalence) was measured in the equation:

Sample size= $Z^2 × (p) × (1-p) / d^2$.

Where: Z = Z value (1.96 for 95% confidence level), p = percentage picking a choice, d = margin of error (set at 5%). So, the minimum sample size required is:

Sample Size =$1.96^2 × (0.50) × (1-0.50)/0.05^2$

= 385

Adjustment of a sample size to non-response bias, which is considered as 20%: Non-response bias = 1- (non-response rate anticipated) = 1 - 20/100 = 0.8.

The final sample size = the effective sample size / non-response bias = 385 / 0.8= 481.[16]

Sampling: we selected the sample by a multistage stratified sampling. The total number of hospitals in Al-Karkh Directorate is 14, and 12 in the Medical City Directorate. From these hospitals, we chose all general and teaching hospitals, which were eight from Al-Karkh and two from the Medical City directorates.[17]

Then, stratification was according to the weight of gender in the first stratum and the weight of job title in the second stratum. The stratification technique was used to eliminate confounders in the design phase. Using the concerned formulae, the sample sizes for Al-Karkh Directorate were 391: 174 males (112 physicians and 62 pharmacists) and 217 females (102 physicians and 115 pharmacists). On the other hand, the sample sizes for the Medical City Directorate were 90: 40 males (32 physicians and eight pharmacists) and 50 females (30 physicians and 20 pharmacists). Physicians were further stratified into specialists, senior residents, and Junior residents. The

Table 1 | Definition of the demographic features of the sample.

	Variable	Categories
1.	Age	≤ 40 Year
		> 40 Years
2.	Gender	Male
		Female
3.	Job title	Specialist
		Senior Resident
		Junior Resident
		Pharmacist
4.	Directorate	Al-Karkh
		Medical City
5.	Qualification	Bachelor
		Higher diploma
		Master
		Board or PhD
6.	Work experience in years	≤ 5
		6-15
		> 15
7.	Crowd Index *	No Overcrowding ≥2[11]
		No Overcrowding <2

Socioeconomic status (SE) was measured indirectly by the crowding index, the number of people in a dwelling divided by the number of rooms

sampling technique within each stratum was done by simple random sampling.

Variables:

A. Dependent Variables: Drug abuse is defined by the World Health Organization (WHO) as "The use of a substance for a purpose not consistent with legal or medical guidelines, as in the non-medical use of prescription medications. It includes the following:

- Use of illicit drugs.

- Misuse of prescription drugs, over-the-counter drugs and solvents.

- Misuse of alcohol. [18,19]

B. Independent Variables are shown in detail

Table 2 | The cutoff and placement criteria of the DAST-20 questionnaire.

DAST-20	Degree	ASAM* levels	Action
0	None		Monitor
1-5	Low	I	Brief Counseling
6-10	Intermediate (likely meets DSM criteria)	I or II	Outpatient (intensive)
11-15	Substantial	II or III	Intensive
16-20	Severe	III or IV	Intensive

*American Society of Addiction Medicine Placement Criteria

in **table 1**

Research Tool: We designed a questionnaire to collect the data. It consists of three parts. The first one included demographic features. The second was the Drug Abuse Screening Test Questionnaire (DAST-20),[20] composed of 20 items, each answered by yes or no and given one or zero for the calculation. This questionnaire is a validated and reliable screening test designed to quantitatively index the degree related to drug abuse, like prescription drugs, over-the-counter drugs (OTC), and illicit drugs, but not alcohol abuse. The third part included some explanations of the terms that may be ambiguous.

Cutoff of the questionnaire:[21] **Table 2** shows the level of drug-related problems; the higher the score is, the more the risk.

Data collection was done by face-to-face, self-administered questionnaires to explain the purpose and answer participants' questions simultaneously. Questionnaire filling took about 10-15 minutes on average.

Statistical analysis: We used Statistical Package for Social Sciences (SPSS) version 25 software for data entry and statistical analysis. Data were shown in tables as frequencies and percentages. We used chi-square to test the statistical significance and standardize residual (SR) in analysis. The standardized residual makes it easy to see which cells contribute the most to the value.[22] The P-value is considered significant if it is ≤ 0.05, and ≤ 0.001 is considered highly significant.

RESULTS

The response rate was 82.5% (397 out of 481), 177 (86.3%) for pharmacists and 220 (79.7%) for physicians. The demographic characteristics of the sample are shown in **table 3**.

The highest rate of drug abuse was in a low category, followed by none and intermediate use, 55.2%, 39.3%, and 5%, respectively, **table 4.**

Years of experience and job titles show a

Table 3 | Demographic characteristics of the sample

Variable	Frequency	No.	%
Gender	Male	175	44.1
	Female	221	55.7
Age	≤40	313	78.8
	>40	84	21.2
Directorate	AlKarkh	327	82.4
	Medical City	69	17.4
Qualification	Bachelor	273	68.8
	Diploma	17	4.3
	Master	11	2.8
	Board	96	24.2
Years of experience	≤5	190	47.9
	6-15	118	29.7
	>15	88	22.2
Job title	Specialist	107	27.0
	Senior Resident	94	23.7
	Junior Resident	19	4.8
	Pharmacist	176	44.3
Crowd Index	Not crowded	291	73.3
	Crowded	106	26.7

statistically significant association with the degree of having drug-related problems or abuse; the p-values were 0.004 and 0.012 for each, **table 5.**

To identify which cells are contributing the most to the value of chi-square, we use standardized residual **tables 6, 7**: Low and intermediate levels of drug-related problems are associated with years of experience ≤5 years and being a pharmacist.

DISCUSSION

Abusing prescribed, OTC, and other drugs carries numerous health problems.[23] This study showed that a drug-non-abusing group was 126 (39.3%), and a low drug-abusing group

Table 4 | Levels of drug related problem or abuse of the participants.

	Number	%
None	156	39.3
Low	219	55.2
Intermediate	20	5.0
Substantial	2	0.5
Severe	0	0
Total	397	100.0

Table 5 | The association between demographic criteria and the levels of drug abuse.

Variable		None		Low		Intermediate		Substantial		P value
		No.	%	No.	%	No.	%	No.	%	
Gender	Male	70	44.9	93	42.5	11	55	1	50	0.827
	Female	85	54.5	126	57.5	9	45	1	50	
Age	≤40	120	76.9	175	79.9	16	80	2	100	0.790
	>40	36	23.1	44	20.1	4	20	0	100	
Directorate	AlKarkh	123	78.8	184	84.0	19	95	1	50	0.373
	MedicalCity	33	21.2	34	15.5	1	5	1	50	
Qualification	Bacholar	93	59.6	161	73.5	17	85	2	100	0.141
	Diploma	7	4.5	10	4.6	0	0	0	0	
	Master	5	3.2	6	2.7	0	0	0	0	
	Board	51	32.7	42	19.2	3	15	0	0	
Work Experience (Yr)	≤5	57	36.5	118	53.9	15	75	0	0	0.004
	6-15	60	38.5	53	24.2	3	15	2	100	
	>15	39	25.0	47	21.5	2	10	0	0	
Job title	Specialist	53	34.0	51	23.3	3	15	0	0	0.012
	Senior Resident	47	30.1	44	20.1	3	15	0	0	
	Junior Resident	8	5.1	11	5	0	0	0	0	
	Pharmacist	48	30.8	112	51.1	14	70	2	100	
Crowd Index	Not crowded	109	69.9	165	75.3	16	80	1	50	0.490
	Crowded	47	30.1	54	24.7	4	20	1	50	

was 219 (55.2%). A low score does not necessarily mean that the person is free of drug-related problems,[21] it may be the beginning of them because simple actions may become habitual more quickly in the behavioural theory.[24] Firstly, the habit formation of abusing drugs may be affected by the culture of a community that pays little or no attention to the occasional use of drugs improperly. Such culture believes that "take a pill for what ails you". The perception of the idea that prescription drugs are less harmful than illicit, might play a role.[25] Secondly, habit building is recently considered to be as important as or even having more effect than motivational directed behaviour.[26]

In psychology, 'habits' are defined as actions that are triggered automatically in response to contextual cues that have been associated with their performance, e.g., putting on a seatbelt (action) after getting into the car (contextual cue). Habit-formation advice, paired with a 'small changes' approach, has been tested as a behaviour-change strategy (low drug abuse rate).[27] Habit-formation is a way to promote long-term behaviour change. [28] Habits develop unconsciously from internal or external stress. These tend to be negative or maladaptive habits.[29]

Intermediate consumer and substantial drug abuse rates were 5% and 0.5%, respec-

Table 6 | The distribution of adjusted rate between job title and the levels of drug problems or abuse.

Levels	Job title			
	Specialist	Senior Resident	Junior Resident	Pharmacist
None	2.5	2.4	0.3	-4.4
Low	-1.8	-1.9	0.2	3.0
Intermediate	-1.2	-0.9	-1.0	2.4
Substantial	-0.9	-0.8	-0.3	1.6

Table 7 | The distribution of standardized residual between years of experience and the levels of drug problems or abuse.

Levels	Years of experience group		
	≤5	6-15	>15
None	-3.6	3.1	1.1
Low	2.7	-2.7	- 0.4
Intermediate	2.5	-1.5	- 1.3
Substantial	-1.4	2.2	-0.8

tively. Although these figures might represent a small proportion, but they are still not zero and they reflect a sustained habit. This proves the inclination from low to intermediate and even more progressive habit was available. Furthermore, other reasons for drug abuse are present but in top are stress, burnout syndrome, chronic fatigue and self-medication for pain, and to increase work performance. [8]

According to the demand–control–support (DCS) model, high-stress work—such as high job demands, low job control, and low social support at work—may trigger employee health problems. Coping with work stress requires an employee to exert continuous effort and apply relevant skills and performance; this may push them to practice drug taking, e.g., painkillers, either in low or intermediate patterns.[28]

A survey of 55 doctors in 2013 in the USA on substance misuse found that 69% of doctors misuse prescription drugs at least once during their careers. The three main reasons are high levels of stress along with physical and mental pain. Overall, drug abuse in doctors and drug-addicted nurses is five times higher than in the general public.[29]

The years of experience equal to or less than five years were significantly associated with a low and intermediate rate of drug abuse, SR 2.7, 2.5 respectively, and p-value of 0.004. On the other hand, the pharmacists showed a significant association with low and intermediate rate levels of drug abuse, SR 3, 2.4 respectively, and p-value 0.012.

Healthcare providers with five years or less of work experience face many difficulties. A new work life with high social expectations, less ability to overcome problems, less training, less financial income, and less practice with patient, work, and organization problems put more stress and pressure on them. In relation to the "more drug abuse pattern was recorded in ≤5 years of experience group", a notice arises that the specialist group recorded as none drug abuse category, SR 2.5, in the privilege of more experience and more stable financial income. Most specialities may be qualified in our country after at least five years.

In contrast to this study concerning specialists, a literature review was conducted in the USA in 2014 about substance use among physicians and medical students using resources available at the National Institutes of Health, including the National Institutes of Health Library and the National Library of Medicine has found that physicians abuse drugs, both controlled substances and illicit drugs, at similar rates to the general population. However, physicians abuse prescription drugs at higher rates.

Misuse of medications may begin as self-treatment with prescription drugs. Specialists abusing drugs within their specialities e.g., anesthesiologists most commonly abuse opioids, whereas psychiatrists and emergency physicians abuse benzodiazepines.[1]

The current study results are similar to the Standard Insurance Company (Portland, Oregon) study that was conducted as two surveys about behavioural health in the workplace, each with more than 1,425 US workers. The first was completed in late 2019, and a follow-up was completed in late 2020 during the COVID-19 pandemic. More workers suffer from drug abuse in addition to addiction. Younger, less experienced workers, who are of more debt and have lower wages, were more susceptible.[30]

A significant association was presented between being a pharmacist and low and intermediate levels of drug abuse in rank. Non-prescription medicines, also called over-the-counter (OTC) medication, are accessible by customers, while prescription medications are only reachable by employees. In general, many reasons for drug abuse are shared between physicians and pharmacists.[31] The latter group might have higher access to pharmaceuticals and proximity to areas producing these medications.[8]

According to the American Addiction Center in 2023, pharmacy professionals are at an increased risk of substance use disorders, and multiple studies reveal some alarming statistics, including:

• 46% of pharmacists have used controlled substances without a prescription.

• 88% of pharmacy practitioners in one

study who admitted using non-prescription drugs began using them in college.[32]

Limitation and strength of study: The cross-sectional study design cannot state a cause-effect association. Since the content of the DAST questionnaire items is obvious, clients may fake results. Nonetheless, the DAST is brief and inexpensive to administer. It provides a quantitative index of the extent of problems related to drug abuse. Thus, one may move beyond identifying a drug problem and obtain a reliable estimate of the degree of problem severity. Although it is a challenge to ask the items in this questionnaire to anyone in our conservative society that has a strict culture that considers drug abuse (illicit section) as a taboo, but building data and knowledge is important for health policy planning.

CONCLUSION

More than half of the participants in this study have low levels of drug-related problems or abuse. Despite its low rate, it might progress from instant habit to long term behaviour that carries many adverse health effects mainly physical and mental. Having a work experience of five years or less and being a pharmacist are more prone to have low or intermediate levels of drug-related problems or abuse.

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