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Assessment of Healthcare Workers' Knowledge to Occupational hazards in Some Hospitals of Thi-Qar Governorate /Iraq

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***Abstract*—Employees in the healthcare industry operate in one of the riskiest workplaces Healthcare employees suffer a number of dangers as a result of their job last activities in addition to the usual workplace-related risks. These risks come from a variety of sources including biological, physical, psychological, and chemical agents. The study's objectives were to investigate the levels of knowledge held by medical and paramedical personnel regarding occupational dangers in their workplaces. Moreover, the relationships between various demographic characteristics of these staff members and their knowledge of such hazards were investigated. A descriptive cross-sectional study was carried out in hospitals, during the period of November 5th, 2022 to February 10th, 2023. A number of 355 people were participated in the study, information about (Knowledge) the data was collected through a structured questionnaire and the data was collected using self-report Technique. Regarding the Knowledge, the results of the present study showed that all responses regarding the preceding domain had a moderate evaluation. Also, the results show that the health care worker knowledge impact with education level and the year of age and year of experience. Depending on the collected results, it can be concluded that the medical and paramedical staff had below good (moderate) Knowledge regarding the occupational hazards in their working environment.**

Keywords: Knowledge, occupation hazards, healthcare workers.

I. INTRODUCTION

Any actions that might result in an occupational hazard or raise the likelihood of one existing as an occupational hazard [1]. Economic loss, physical loss, and psychological problems such as melancholy and stress are just a few of the consequences that occupational illnesses and injuries have on healthcare practitioners. Consequently, these are detrimental to the workers, their families, and the country as a whole [2] .Healthcare facilities (HCF) include risks that are classified by the World Health Organization (WHO) as physical, biological, mechanical, ergonomic, chemical and psycho-social facilities. According to previous studies, occupational diseases and injuries among healthcare workers (HCWs) are among the highest in any industry, although they might be decreased or eliminated [3].

According to occupational dangers among hospital workers, hospital staff members may suffer from injuries, work-related stress and low back ache as a result of pushing, or dragging patients to beds, chairs, and toilets lifting [4].

In addition, the high prevalence and burden of occupational hazards also include blood-borne illnesses such as hepatitis B and human immunodeficiency virus (HIV) infection because of the exposure to contagious sharp objects like needle sticks, scalpel injuries, shattered glass, taking blood samples, and connecting or removing needles from sick people [5,6].
Workplace accidents must be thoroughly examined and publicly discussed. This is because they don't happen on purpose. These must be seen as a source of information that shapes attitudes and beliefs because of the opportunities they present. An increasing prevalence of occupational hazards may also deteriorate the overall facility climate and the efficiency of patient care provided by healthcare staff [7].

Since the continuous change in roles of technology in healthcare services, hospitals can now diagnose patients

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more swiftly, accurately, and less invasively than before. This development in Technology enables medical facilities to provide patients with better care and speed up their recuperation. In high-risk clinical departments of a hospital, such the operating room and critical care unit, the bulk of jobs are automated or involve the use of medical technology. However, utilizing medical equipment improperly might seriously damage or even end the life of the patient. Some examples include the patient who suffered burn injuries after losing contact with the patient plate while utilizing electrosurgical equipment in the operating theatre, as well as the improper medicine delivery caused by an uncalibrated infusion (8). Occupational health concerns are common in developing countries, especially when they involve job overload, inadequate task control, and role conflicts. Other causes include ineffective management, uneven management techniques, human and financial factors, and staff behaviors and practices that have a big impact on care settings like risk for emotional, physical, chemical, mechanical, and biological factors [9] . Recently, the healthcare staff made it clear that training programs and functional advanced education would provide the staff with the comprehensive indication of the essential skills and knowledge required to deal with occupational hazards. Preventing injury from occupational hazards in a healthcare setting involve the prevention of work-related associated risks and improving health-care conditions [making emergency care available to all levels of health workers, and having access to health care professionals at all levels, among other Things [10].

II.MATERIALS AND METHODS

A. Study Period:

This study was conducted in the period from 3 November 2022 to 10 February 2023

B. Study design and data collection:

Data collection for this descriptive cross-sectional study lasted for more than 4 months, from 3 November 2022 to 10 February 2023. Data was collected for every day during the period. The study was conducted in the Thi Qar governorate in Iraq, which is estimated to have a population of 2,095,172 people and 4 hospitals from each of the health directorates that are situated there. The self-report of each participant for the entirety of the questionnaire took around 40 minutes. 364 people were included in the sample. The participants were selected randomly. The sample size was calculated using Stevens' formula and includes all 364 members of the medical and paramedical personnel that work in the health directorates of Thi-Qar Governorate.

C. The study instruments:

A structured questionnaire was constructed based on earlier studies where used to acquire data about medical and paramedical staff knowledge.[11,12]. and modified, the questionnaire was divided into two sections.
demographic and occupation characteristic:
Concerning demographic and occupational information data contain items including age, gender, years of experience, educational level, health care specialty, Department (Working area), Years of experience.
knowledge of medical and paramedical staff:
Contain 45 items that are assessed using five Likert scales with integer values (1, 2, 3, and 4 for Strongly Disagree, Disagree, and Strongly Agree, respectively)

D. Inclusion and exclusion criteria:

The health directors of Thi-Qar picked the hospitals and health facilities, and among the inclusion criteria were the medical and paramedical personnel from both genders. Visiting or rotating doctors from different departments, as well as medical and paramedical employees that are uncooperative or unable to engage, were among the exclusion criteria

E. Reliability of the questionnaire:

Since the results demonstrated a high level of internal consistency and stability for the examined items of the utilized questionnaire, the reliability of the questionnaire was used to determine the correctness of the questionnaire. According to Table 1 calculations performed using Alpha Cronbach's alpha coefficient, the questionnaire is successful.

Table (1): Reliability Coefficients of the Studied Questionnaire's

Reliability Coefficient of the studied Questionnaire	Standard lower bound	Actual values	Evaluation
Alpha (Cronbach)	0.70	0.800	Verified

III.RESULTS AND DISCUSSION

The distribution of health care workers according to socio-demographic,occupation
characteristic:
According to the current findings, the majority of the study samples (36.1%) was age age rate of 26-30 year., These results disagrees with the results of the study performed in Nigeria [3] . There may be a relation between this and the current objective of the Iraqi health and high education authorities to increase the capacity of the health and medical educational institutions and institutes and to employ all of its graduates

Staff with 1 to 5 years of experience constituted the major part of the current study sample (46.5%), these findings agree with previous results of studies achieved in Iraq[13]. as well as in China [14]. These findings are the consequence of an increase in the number of graduates from medical institutes and universities in Iraq, as well as their enrollment in direct jobs

Concerning the educational level of the participants, the study sample had the largest part of people with a

Diploma degree (40.3%), This finding disagrees with the results in other parts of Iraq, where the highest percentages of the analyzed samples held a Bachelors' degree [15]. this may be due to the large number of private universities in Baghdad. This could increase the number of graduates working in this profession, as well as the wide range of private business options in the city

Regarding the career title of HCWs, it was found that the highest percentage (20.8%) of HCWs were medical assists followed by Pharmacists 18.9%. These results are comparable to previous results in the city of Sulaymaniyah by [16]. This is due to the large number of institutes that graduates medical assistants from different department

According to the results of this study, a percentage of 46.5% of health workers have 1-5 year of experience. this might due to most of the study ages are less than 30 years. This might be due to the fact that the majority of the study's HCWs were under 30 years old.

This result agrees with the results of a study conducted in Kut City, Iraq. It was found that (56) health workers have work experience of less than five years [17], as well as in China [14].

The study also found that 74.6% health care workers received no training program dedicated to occupational health and safety. These results differ from the results of a study conducted in Karbala City, Iraq. In this study, it was found that 77.0 % of participants received a training program may be due to the new policies adopted in the Karbala Health Department, which emphasize occupational health and safety. the highest percentage (83.9%) of HCWs have no chronic diseases due to the exposer to the occupational hazard.

Table (1) Distribution of Health care workers according to socio-demographic and occupation characteristics

		No.	%
Age groups	≤25 years	94	26.5%
	26-30 years	128	36.1%
	31-35 years	56	15.8%
	36-40 years	27	7.6%
	41-45 years	21	5.9%
	>45 years	29	8.2%
	Mean ±SD (Min-Max)	**31.33±8.158 (21-59)**	
Gender	Male	164	46.2%
	Female	191	53.8%
Career title	Physician	37	10.4%
	Pharmacist	67	18.9%
	Nurse	63	17.7%
	Medical technical	60	16.9%
	Science (Biologist, Chemist, and Physicist)	32	9.0%
	Specialist in medical devices	12	3.4%
	Medical assist	74	20.8%
	Cleaning workers	10	2.8%
Years of Work	1-5 years	165	46.5%
	6-10 years	47	13.2%
	11-14 years	55	15.5%
	≥15 years	88	24.8%
Training program	Yes	90	25.4%
	No	264	74.6%
Chronic diseases associated with work	Yes	57	16.1%
	No	298	83.9%
Education level	Primary	9	2.5%
	Intermediate	12	3.4%
	Secondary	3	0.8%
	Diploma	143	40.3%
	Bachelors	125	35.2%
	Higher Diploma	47	13.2%
	Master	14	3.9%
	PhD	2	0.6%

The association between the overall Awareness score and socio-demographic variables of Health care workers:

The study found that there is a significant association between the age ≤ 25 years, education level (PhD) and level of awareness among health workers (P. value <0.05), Where HCWs have age ≤ 25 years education level (PhD) had higher moderate awareness, level. This is consistent with a study conducted in Kut City, Iraq [18], which showed a high significant relationship (P. value <0.05) between age ≤ 25 years educational level with regard to awareness of occupational hazards .

This explains the importance of adding curricula in the preliminary study on occupational safety, and also explains the close link between the educational level and awareness of occupational hazards as a result of working in hospitals. The multiplicity of specializations of the studied sample of health workers also led to multiple levels of knowledge about general awareness of occupational hazards in hospitals.

Moreover, the study also showed that there is a significant correlation (P. value <0.05) between the absence of chronic diseases resulting from exposure to occupational hazards and the high level of awareness of occupational hazards. This finding is similar with the outcome of a study in Europe titled Chronic Diseases and Employment [19].

This due to the increased awareness of healthcare workers about occupational risks in their workplaces leads to the adoption of necessary methods for preventing occupational hazards, such as wearing personal protective equipment and undergoing regular occupational health screenings. This helps in reducing the risks of occupational diseases or detecting them early to prevent them from becoming chronic.

for the training program the study find is non-significant relationship between overall awareness of occupational hazard and training programs (P.value>0.05).

This was confirmed by the results carried by Selman and others in Karbala Governorate, Iraq, [13] in which find out their non-statistical significance relationship between the training program provided for occupational health and safety and general awareness (P. value>0.05) of it for health staff in hospitals . .

The present study also agrees with the study conducted in Kut Governorate, Iraq. The results of that study showed that there is no significant relationship. This means that there was no effect of the training programs provided and the level of overall awareness in the occupation hazard in the hospitals.

This is due to the insufficient programs offered to health workers, as well as the lack or unavailability of

occupational safety specialists in hospitals for the purpose of raising awareness and education about the programs offered or training courses without practical offers It's just a theory.

The results showed that there is a statistical association (P. value <0.05), between years of work (experience) and the level of total awareness of the occupational hazards of health workers in hospitals, as the category of health staff who have working years of more than 15 years has a higher level of awareness than the categories and this is consistent and this result Agree with study in Sulaymaniyah, Iraq [20]. this may be due to the accumulation of information and experience in dealing with occupational hazard in the hospital.

The results showed that there is a statistical association (P. value <0.05), between no chronic disease associated with work (experience) and the level of total awareness of the occupational hazards of health workers in hospitals.

Table (2) Association between the Overall Awareness score and socio-demographic, occupation characteristics of Health care workers.

		Overall Awareness score			X^2	P. value
			Poor (<135 score)	Moderate (>= 135 score)		
Age groups	≤ 25 years	No.	12	82	30.00	<0.001*
		%	12.8%	87.2%		
	26-30 years	No.	50	78		
		%	39.1%	60.9%		
	31-35 years	No.	24	32		
		%	42.9%	57.1%		
	36-40 years	No.	9	18		
		%	33.3%	66.7%		
	41-45 years	No.	13	8		
		%	61.9%	38.1%		
	>45 years	No.	9	20		
		%	31.0%	69.0%		
Gender	Male	No.	55	109	0.046	0.830
		%	33.5%	66.5%		
	Female	No.	62	129		
		%	32.5%	67.5%		
Education level	Primary	No.	7	2	16.416	0.022*
		%	77.8%	22.2%		
	Intermediate	No.	5	7		
		%	41.7%	58.3%		
	Secondary	No.	2	1		
		%	66.7%	33.3%		
	Diploma	No.	44	99		
		%	30.8%	69.2%		
	Bachelors	No.	46	79		
		%	36.8%	63.2%		
	Higher Diploma	No.	11	36		
		%	23.4%	76.6%		
	Master	No.	2	12		
		%	14.3%	85.7%		
	PhD	No.	0	2		
		%	0.0%	100.0%		
		%	25.0%	75.0%		

		Overall Awareness score			X^2	P. value
		Poor (<135 score)		Moderate (>= 135 score)		
Chronic diseases	Yes	No.	30	27	11.895	0.001*
		%	52.6%	47.4%		
	No	No.	87	211		
		%	29.2%	70.8%		
Career Title	Physician	No.	5	32	12.426	0.087
		%	13.5%	86.5%		
	Pharmacist	No.	27	40		
		%	40.3%	59.7%		
	Nurse	No.	24	39		
		%	38.1%	61.9%		
	Medical technical	No.	18	42		
		%	30.0%	70.0%		
	Science (Biologist, Chemist, and Physicist)	No.	10	22		
		%	31.3%	68.8%		
	Specialist in medical devices	No.	4	8		
		%	33.3%	66.7%		
	Medical assist	No.	23	51		
		%	31.1%	68.9%		
	Cleaning workers	No.	6	4		
		%	60.0%	40.0%		
Years of Work	1-5 years	No.	91	74	85.961	<0.001
		%	55.2%	44.8%		
	6-10 years	No.	18	29		
		%	38.3%	61.7%		
	11-14 years	No.	4	51		
		%	7.3%	92.7%		
	≥15 years	No.	4	84		
		%	4.5%	95.5%		
Training program	Yes	No.	29	61	0.037	0.847
		%	32.2%	67.8%		
	No	No.	88	176		
		%	33.3%	66.7%		

According to the overall awareness score:

In the Figure (1) the present results reveal the highest percentage 67.0% of HCWs have a moderate awareness score, while the lowest percentage 33.0% of them have a poor awareness score. The mean ± SD of overall awareness score was (143.55±16.50) which rested within a below good (moderate) level (63.8%) (≥135 score).

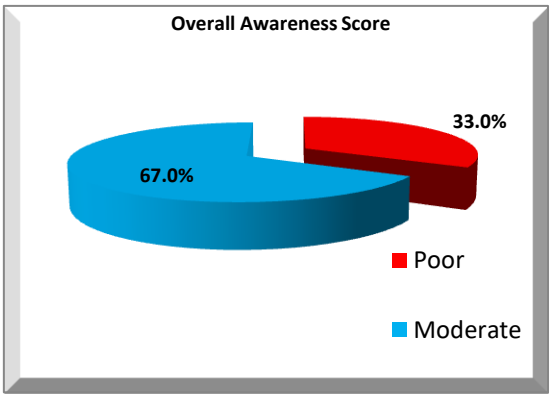

Figure (1) overall awareness score

The findings revealed that health workers had a Less than good " moderate" level awareness evaluation, this result is like previous study in Al kut City, Iraq [18] . and with results in Cyprus [21]. .

As well as other studies in Africa by [22].and in Ethiopia by [23]. It revealed that the personnel that were being studied had a high awareness rate., in Indonesia by [24], also in Serbia by [25], this may be explained by the countries' more effective administrative and occupational programs .

IV.CONCLUSION

Most of the hospital employees have below good (moderate) knowledge regarding occupational hazards in their surrounding workplaces.

The influence of educational level on total assessment is quite evident; the higher the educational level of the employees, the better the results The results showed that healthcare workers who had a high level of awareness of the occupational hazard in their workplace had no chronic disease associated with work.

RECOMMENDATION

1-The introduction of modern educational programs among medical and paramedical personnel is essential in order to expand their understanding of occupational hazards in their respective fields of practice.

2-Monitor and evaluate the effectiveness of the training and educational programs over time.

3-Develop a comprehensive questionnaire that assesses healthcare workers' knowledge of these hazards, including their understanding of the potential risks and the measures they can take to protect themselves and their patients.

CONFLICT OF INTEREST

Authors declare that they have no conflict of interest.

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