

ORIGINAL ARTICLE

Health workers' adherence to occupational hazards preventive practices in Thi-Qar Governorate, Iraq

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Abstract. Workplace problems that are likely to increase the risk to our health are referred to as occupational hazards. These problems can be classified as either biological or non-biological. A wide range of these risks, including physical, chemical, and psychological ones, provide challenges for healthcare practitioners. Such risks therefore negatively affect employees, their families, friends, and the country. The purpose of the study is to assess the level of adherence to preventive practices towards occupational hazards in the hospitals of Thi-Qar Governorate and its relationship to the demographic and occupational information of the healthcare workers. A descriptive cross-sectional study was carried out in hospitals Thi-Qar Governorate, During the period from September 5th, 2022 ending on February 10th, 2023, 355 of healthcare workers individuals participated in the study, and the data was collected using self-reported questionnaires and information about practices was collected through a systematic questionnaire developed by the researcher. Regarding the preventive practice of the staff, the results observed that all responses regarding the present results reveal the highest percentage 41.7% of HCWs have a poor practices score, while the lowest percentage 20.8% of them have a moderate practices score. The mean \pm SD of the overall practices score was (53.81 \pm 17.807) which rested within a moderate level (48-46 score). The results of this study indicate that there is a significant association between the overall practices score and socio-demographic variables (P-value <0.05). This explained that the participants who age \leq 25 years, Education level (Ph.D.), and have no chronic diseases, had higher good practices than other categories. Also, the results of this study

indicate that there is a significant association between the overall practices score and occupation characteristics (P-value <0.05), This explained that the years of work (\geq 15 years), and, hours of work (\leq 5 h), had higher good practices than other categories. Most of the employees of the hospitals selected for the sample in Thi-Qar Governorate have 'Moderate' commitments to safety measures with regard to occupational hazards in their surrounding workplaces, The study showed that years of experience, time of work and educational level have a significant impact on practices towards occupational hazards in hospitals.

Introduction

Healthcare workers are exposed to a variety of occupational dangers, including those related to infection, improper patient handling, dangerous chemicals, radiation, heat, and noise, psychological risks, violence and harassment, injuries, and insufficient access to appropriate water, sanitation, and hygiene (1).

Occupational health is described as 'the maximum degree of physical, mental, and social well-being of employees in all vocations' by the Joint International Labor Organization Committee on Occupational Health in 1950 (2).

According to the National Institute for Work Safety and Health (NIOSH), the healthcare sector employs 12% of the global workforce. Over the past ten years, rates of exposure to occupational hazards including wounds and illnesses have substantially increased for healthcare workers (3).

The 'World Health Organization' (WHO) defines occupational health risks as a health risk that can be linked to an unfavorable possible state at work (4).

Additionally, it refers to any conditions at the workplace that put a worker at risk of an accident, health issues, or death as well as socioeconomic and environmental burden (5).

Health care facilities and other workplaces are inherently dangerous environments that represent a serious threat to the lives and health of health professionals (HCWs) (6).

Hospitals are dangerous workplaces that pose specific dangers to health professionals' lives compared to other types of jobs. Controlling and reducing worker hazards is one of the

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biggest issues in the health sector since it also needs to take into consideration hospital patients' conditions (7).

The majority of tasks in a hospital's high-risk clinical areas, such the operating room and critical care unit, are mechanized or entail the use of medical technology. But using medical equipment incorrectly or in ways other than those intended might cause the patient great harm or even death (8).

The Occupational Safety and Health Administration categorizes occupational hazards into five groups: physical risk, chemical risk, biological risk, radiological risk, and ergonomic risk factors. Occupational hazards are risks that are connected to the job. Any physical safety risks, such as slip risks, mechanical risks, electrical risks, or any other potentially dangerous risks that can be present in the working space, might result in workplace accidents (9).

Health personnel are the foundation of every well-functioning healthcare system. Health professionals should have the right to healthy and safe working circumstances in order to preserve their own health while contributing to the enjoyment of the right to health for everyone (10). The purpose of the study is to assess the level of adherence to preventive practices towards occupational hazards in the hospitals of Thi-Qar Governorate and its relationship to the demographic and functional information of the healthcare workers.

Material and methods

Study period. This study was performed from September 5th, 2022 to February 10th, 2023.

Study design. A cross-sectional study was conducted in some hospitals in Thi-Qar Governorate, which is located in southern Iraq.

Population source. The study population consisted of all healthcare providers from the medical, health, and support staff in some randomly selected hospitals for the purpose of the study. and the study population include Physician, Pharmacist, Nurses, Medical technical, Science (Biologist, Chemist, and Physicist) Specialists in medical devices, medical assistance.

Inclusion criteria. Health care worker who worked in selected hospitals, and were available at the time of study and Health care worker who worked in selected hospitals for more than six months were included in the study.

Exclusion criteria. A healthcare worker who did not accept to participate in the study and healthcare worker who cannot read or write and Workers you have served for less than 1 year.

Sample size and sampling techniques. The sample size for this study was 355, according to the Steven Thompsons formula for calculating sample size (11).

$$n=(N \times P(1-P)) / [N-1(D^2 \div Z^2) + P(1-P)]$$

Where: N=community size 4650, n=the minimum sample size, Z=stander degree=1.96, p=rat of availably of property=0.50, d= error ration=0.05

The study sample was collected randomly. 61

Variables of the study 62

Questionnaires. A systematic questionnaire was used to interview the participants. The questionnaire included questions about sociodemographic information, occupation information and the list of preventive practice toward the occupational hazard The questionnaire was submitted to 10 university experts in the field of specialization to verify the validity of the study tool. Also, two experts translated the questionnaire. 63-71

Sociodemographic information. General participant information, including age in years, gender, Education level. 72-74

Occupation information. Include Career title (Physician, Pharmacist, Nurse, Medical technical, Science (Biologist, Chemist, and Physicist), Specialist in medical devices, medical assist, cleaning workers), Years of Work (1-5 years, 6-10 years, 11-14 years, ≥15 years) Hours of Work (≤5 h, >5 h), Training program and Chronic diseases associated with work. 75-82

Preventive practice to occupation hazard in the hospital. Composed of (16) items of preventive practice toward the occupational hazard in the hospital. Regarding level preventive practice, the percentage of the overall evaluation was extracted according to the following formula: 83-88

$$\text{Percentage} = \text{standard score} / \text{actual score} * 100.0\%$$

Statistical analyses. Data input and analysis were done using the social science program's statistical package (version 27). Statistical tests like the t-test and Chi-square test were used to both category and numeric data. The descriptive statistics for the data were the mean, standard deviation, frequencies, and percentages. For statistical analysis, a P-value of 0.05 or below was considered significant. 89-98

Ethical approval and consent to participate. Ethical approval and all administrative agreements were obtained from the College of Health and Medical Technologies/Department of Community Health and the Research Committee at the Southern Technical University, followed by an official agreement from the Thi-Qar Health Directorate and then from the hospitals affiliated to this directorate in which data are collected, and acceptance of all Participants pre-record while ensuring the privacy of their responses. 99-107

Results 108

Table I demonstrates the distribution of the health care workers according to socio-demographic variables. The participants' ages ranged from 21 to 59 years, with a mean of 31.33±8.158 years. The highest percentage (36.1%) belonged to the age group (26-30) years, while the lowest percentage (5.9%) belonged to the age group (41-45 years). There was a clear 53.8% female preponderance. As for educational level, the highest percentage (40.3%) of HCWs had a diploma, followed by 35.2% who had a bachelor's degree. 109-120

Table I. Distribution of Health care workers according to socio-demographic variables.

		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	31.33±8.158	
	(Min-Max)	(21-59)	
Gender	Male	164	46.2
	Female	191	53.8
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

Table II demonstrates the distribution of the health care workers according to occupation characteristics. The health facilities, the results reveal that the highest percentage (20.0%) of HCWs work in Laboratories, while the lowest percentage (2.0%) of HCWs work in eye examination units. Regarding the career title of HCWs, the results found that the highest percentage (20.8%) of HCWs were medical assists followed by Pharmacists 18.9%. The results indicate that 46.5% of HCWs have experience of 1-5 years. Regarding hours of work, the results reveal that the highest percentage (96.3%) of HCWs have hours of work >5 h. The highest percentage. While 74.6% of the participants have no training programs. Finally, the highest percentage (83.9%) of HCWs have no chronic diseases.

In Table III, the present results reveal the highest percentage 41.7% of HCWs have a poor practices score, while the lowest percentage 20.8% of them have a moderate practices score. The mean ± SD of overall practices score was (53.81±17.807) which rested within a moderate level (48-46 score).

Table IV demonstrates the association between the overall practices score about prevention measures and socio-demographic variables of Health care workers. The results of this study indicate that there is a significant association between the overall practices score and socio-demographic variables (P-value <0.05), except for gender, which has no significant association with the overall practices score (P-value >0.05). This explained that the participants who age ≤25 years, Education level (Ph.D.), and have no chronic diseases, had higher good practices than other categories.

Table II. Distribution of Health care workers according to occupation characteristics.

		No.	%	
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	
	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	
Hours of Work	≤8 h	13	3.7	
	>8 h	342	96.3	
Training program	Yes	90	25.4	
	No	264	74.6	
Chronic diseases	Yes	57	16.1	
	No	298	83.9	

Table V demonstrates the association between the overall practices score about prevention measures and occupation characteristics of Health care workers. The results of this study indicate that there is a significant association between the overall practices score and occupation characteristics (P-value <0.05), except for career title, and training program which has no significant association with the overall practices score (P-value >0.05). This explained that the years of work (≥15 years), and, hours of work (≤5 h), had higher good practices than other categories.

Discussion

According to the current findings, the majority of the study samples (36.1%) were between the ages of (26-30) years, this result disagrees with other study done in Nigeria by (12), 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 a major part of the current study sample (46.5%), These findings are agreeing with previous results 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 educational level, the study sample had the largest part of people with a Diploma degree (40.3%), This finding disagrees with results in other parts of Iraq, where the

Table III. Distribution of Health care workers according to Overall Evaluation score of Prevention measures.

	Percentage (Mean± SD)	Assessment	No.	%	
Overall Evaluation score of Prevention measures	67.3% (53.81±17.807)	Moderate	Poor (<48 score)	148	41.7
			Moderate (48-64 score)	74	20.8
			Good (>64 score)	133	37.5

Table IV. Association between the Overall Evaluation score of Prevention Measures and Socio-demographic characteristics of Health care workers.

		Overall Evaluation score of Prevention Measures			P-value		
		Poor (<48 score)	Moderate (48-64 score)	Good (>64 score)			
Age groups	<= 25 years	No.	19	17	<0.001*		
		%	20.2%	18.1%		61.7%	
	26-30 years	No.	65	19		44	
		%	50.8%	14.8%		34.4%	
	31-35 years	No.	29	15		12	
		%	51.8%	26.8%		21.4%	
	36-40 years	No.	9	9		9	
		%	33.3%	33.3%		33.3%	
	41-45 years	No.	13	5		3	
		%	61.9%	23.8%		14.3%	
>45 years	No.	13	9	7			
	%	44.8%	31.0%	24.1%			
Gender	Male	No.	73	38	0.171		
		%	44.5%	23.2%		32.3%	
	Female	No.	75	36		80	
		%	39.3%	18.8%		41.9%	
	Primary	No.	8	0		1	0.001*
		%	88.9%	0.0%		11.1%	
Intermediate	No.	7	3	2			
	%	58.3%	25.0%	16.7%			
Secondary	No.	2	1	0			
	%	66.7%	33.3%	0.0%			
Diploma	No.	56	36	51			
	%	39.2%	25.2%	35.7%			
Bachelors	No.	57	13	55			
	%	45.6%	10.4%	44.0%			
Higher Diploma	No.	16	16	15			
	%	34.0%	34.0%	31.9%			
Master	No.	2	5	7			
	%	14.3%	35.7%	50.0%			
PhD	No.	0	0	2			
	%	0.0%	0.0%	100.0%			
Chronic diseases	Yes	No.	37	7	0.001*		
		%	64.9%	12.3%		22.8%	
	No	No.	111	67		120	
		%	37.2%	22.5%		40.3%	

Table V. Association between the Overall Evaluation score of Prevention Measures and hospital characteristics of Health care workers.

			Overall Evaluation score of Prevention Measures			P-value
			Poor (<48 score)	Moderate (48-64 score)	Good (>64 score)	
Career Title	Physician	No.	8	10	19	0.077
		%	21.6%	27.0%	51.4%	
	Pharmacist	No.	33	13	21	
		%	49.3%	19.4%	31.3%	
	Nurse	No.	29	18	16	
		%	46.0%	28.6%	25.4%	
	Medical technical	No.	25	13	22	
		%	41.7%	21.7%	36.7%	
	Science (Biologist, Chemist, and Physicist)	No.	11	4	17	
		%	34.4%	12.5%	53.1%	
	Specialist in medical devices	No.	7	1	4	
		%	58.3%	8.3%	33.3%	
	Medical assist	No.	28	14	32	
		%	37.8%	18.9%	43.2%	
	Cleaning workers	No.	7	1	2	
		%	70.0%	10.0%	20.0%	
Years of Work	1-5 years	No.	118	37	10	<0.001
		%	71.5%	22.4%	6.1%	
	6-10 years	No.	19	18	10	
		%	40.4%	38.3%	21.3%	
	11-14 years	No.	7	9	39	
%		12.7%	16.4%	70.9%		
	≥15 years	No.	4	10	74	
		%	4.5%	11.4%	84.1%	
Hours of Work	≤5 h	No.	1	1	11	0.002
		%	7.7%	7.7%	84.6%	
	>5 h	No.	147	73	122	
		%	43.0%	21.3%	35.7%	
Training program	Yes	No.	33	19	38	0.501
		%	36.7%	21.1%	42.2%	
	No	No.	114	55	95	
		%	43.2%	20.8%	36.0%	

highest percentages of the analyzed sample held a Bachelors' degree (15) This may be due to the large number of private universities in Baghdad, which increases the number of graduates working in this profession, as well as the wide range of private business options in the city.

Results of this study revealed that the protection and prevention ((practices)) of the staff regarding the occupational hazards that surround them in hospital are 'moderate' practice agrees with the previous studies in Kerbala City (13) and the findings of and in Egypt (16). This may be due to the employees' non-compliance with occupational health and safety instructions in their workplaces, as well as the lack or lack of training programs provided to them in this regard.

According to the results of our study, there is a strong correlation between adherence to health practices (P-value <0.05) towards occupational hazards and age, as the study found that ages age ≤25 years have a high commitment to practices towards occupational hazards.

The results of our study differ with a study conducted in Karbala, Iraq, where it concluded that there is no association between age and practices towards occupational hazards (13). The high correlation between age and adherence to health practices is due to the fact that advanced age means more years of service, which over time leads to an improvement in health practices towards occupational risks.

Our study found that there is a high correlation between the educational level of the health care workers and its commitment to practices towards occupational hazards in the hospital. The reason for this is that the educational basis has a high role in raising awareness about the risks and thus high commitment to practices towards those risks in hospitals.

This finding differs with another study conducted in Karbala Governorate, Iraq (13). Where the study found no statistical correlation between the educational level and commitment to occupational risks.

The study also found that high commitment to occupational practices towards occupational hazard leads to a reduction in chronic diseases resulting from occupational exposure. This is what our study agreed with the results of a study in Europe (17). The reason for this is that the high commitment to health practices in the work environment leads to a reduction in exposure to occupational hazards and, as a result, avoidance of diseases resulting from it.

The study found that there is a significant association (P-value <0.05), between years of work (experience) working years (15 years) and adherence to practices among health workers and that agree with study in Karbala/Iraq (13).

The relationship between experience and good practices may be explained by the fact that experience indicates a person has invested sufficient time and effort into performing an activity and has experimented with a variety of potential ways, methods, and processes to perform this activity. As a result, the person gains knowledge about the mistakes that must be avoided as well as the successful strategies that produce positive outcomes.

The study results concluded a correlation between hours of work and commitment to practices, as it showed that health-care workers who have time less than (≤5 h) of work have a high commitment to practices towards occupational hazards in the work environment (hospitals). In contrast to a study in Egypt, which showed that there is non-significant correlation between practices and work time (18).

This can be explained by the fact that the large number of working hours leads to fatigue and exhaustion, which in turn reduces adherence to practices to protect against occupational risks, such as wearing a mask, for example.

Conclusions

Most of the employees of the hospitals selected for the sample in Thi-Qar Governorate have ‘Moderate’ commitments to safety practice with regard to occupational hazards in their surrounding workplaces, The study showed that years of experience, time of work and educational level have a significant impact on practices towards occupational hazards in hospitals .with indications of ‘bad’ practices with regard to ‘consulting with an occupational safety specialist regarding the transfer of patients’ in place the job.

Recommendation

Raise the understanding of occupational dangers in their workplaces, it is necessary to create contemporary educational programs for medical and paramedical professionals. While broad education is necessary, it is crucial to do research and

develop educational programs on the specialized knowledge and information about the threats in their departments.

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Ethical approval and consent to participate

Ethical approval and all administrative agreements were obtained from the College of Health and Medical Technologies/Department of Community Health and the Research Committee at the Southern Technical University, followed by an official agreement from the Thi-Qar Health Directorate and then from the hospitals affiliated to this directorate in which data are collected, and acceptance of all participants pre-record while ensuring the privacy of their responses.

Conflict of interest

The authors declare no potential conflict of interest.

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