

An Evaluation of Safety Measures and Preventive Measures in Hospitals in Babylon City /Iraq

Hussein A. Al-Jubouri ¹, Alaa K. Jassim Al-Derawi ², Wissam Abdul Amir Ali ³.

aljboryhussen39@gmail.com

¹ Southern Technical University, collage Graduate Studies , Community health department/Iraq

² Department of Medical Laboratory Technologies/College of Health and Medical Technologies/Southern Technical University/Basra/Iraq

³ southern technical university/Technical Institute in Basra /Department of Pharmacy/Iraq

Abstract

Background: Hospital employees are exposed to a variety of workplace dangers that could jeopardize their health and safety physical, chemical, psychological, and biological factors. Like other high-risk workplaces, safety providers and healthcare facilities are ranked by a high level of risk factor exposure, which poses a significant risk to workers' health. **Aim of study:** Evaluating the reality and methods of prevention and safety available in government hospitals. **Materials and Methods:** A descriptive cross-sectional study was conducted to assess health workers with regard to "the work environment (workplace), and tools used for prevention, commitment to using protective equipment and means in hospitals". Samples were collected using a simple random sampling method that included (315) samples from the period from September 30, 2020, until the end of January 2021. It included (5) government hospitals. **Results:** The level of response to the work environment (the workplace) response to the means and tools used for prevention reached a moderate rate (41.3%) (40.3%) respectively, while the level of response was weak to using the protective equipment and means in hospitals, with frequency rate (35.9%). **Conclusion:** The majority of safety and preventative tools are available, according to the current study, and the more workers commit to using them effectively. As a result, it was discovered that workers' lack of commitment to use preventive measures is largely due to their lack, as well as the lack of guidelines and regulations for prevention and safety in hospitals. **Recommend:** The need to provide a safe and risk-free work environment, prevention and safety tools, and attachment to the use of protective equipment and means available in hospitals (headcover, closed shoes, gloves, and frequent medical examination for "infectious diseases" transmitted through blood such as (hepatitis and AIDS) or respiratory droplets such as (COVID19, tuberculosis)) to prevent diseases transmitted from patients.

Keywords: Evaluation, safety measures, preventive measures, health care workers.

Introduction:

Infection control and prevention measures are essential components of quality healthcare and patient safety in health facilities. Healthcare associated infections affect people worldwide and are a global issue for patient safety [1]. Mortality and morbidity associated to health care related infection are very high. It is thought to occur in 10% of patients in the western countries and 25% of patients in resource limited countries due to unsafe infection control practices [2]. There are over 59 million health workers employed and working in healthcare facilities worldwide, they represent 12% of the working population. As these healthcare workers (HCWs) offer services to their patients or clients, they are exposed to numerous occupational hazards on a daily basis which significantly endanger the health and life of the workers [3]. "High rates of morbidity and mortality of exposed healthcare workers have been attributed to occupational injuries and illnesses. Lack of understanding of HCWs, lack of proper protective aids and supplies, insufficient number of workers in the various parts of the hospital, heavy workload, inability to comply with basic safety and hygiene standards and insufficient technical knowledge of current healthcare supplies are the reasons that lead to workplace accidents and diseases in public hospitals. If these factors are tackled, number of occupational hazards and illnesses will drastically reduce [4]. Moreover, Protecting the occupational health of health workers is critical to having an adequate workforce of trained and healthy healthcare workers [4]. An estimated 100,000 people die from occupational injuries while about 400,000 new cases are diagnosed annually" [5]. Accordingly too many researchers conducted studies related to this important issues [6]. Ever since people started working, workplace safety and health have been a matter of concern. Occupational disorders affect the entire organ system, including "respiratory diseases, musculoskeletal injuries, traumatic injuries, cardio-vascular diseases caused by work, hearing loss triggered by noise, dermatological problems, and psychiatric diseases" [7]. While in Iraq specifically in Babil governorate it has not studied before. In addition, all international organizations have taken these important issues into account. Furthermore, health care workers are the most important part of the health system. Health workers at the Hospitals of the city center are considering the key membrane of the hospitals. Studying occupational health hazards with emphasis upon the prevalence, type reasons of their occurrence is one of the IRAQI MOH strategies.

Materials and Methods

This is a cross-sectional descriptive study conducted in 5 randomly selected governmental hospitals (simple sample) in Babil Governorate. The research data was collected from several

government hospitals distributed within the scope of Babil Governorate, and it was not possible to expand the goal and scope of the research after that due to the health conditions that the country and the hospitals were going through. They were as follows (Babylon Hospital for Women and Children, Al-Hilla Surgical Hospital, Al-Murjan Teaching Hospital, Al-Qasim General Hospital, Al-Imam Al-Sadiq Hospital) and the number of hospitals in Babel Governorate is (15). The study included five hospitals (33% of the total) randomly assigned (using simple sampling method) from all sectors and then randomly assigned. The data was collected using a questionnaire designed by the researcher for the purpose of the study. Data for the current study were analyzed using the Statistical Package for the Social Sciences (SPSS) version 24. The data were presented with simple measures of frequency, percentage, mean and standard deviation.

Results:

The work environment (workplace)

Table (1) lists the answers of the study samples on the topic of work environment (workplace). The samples included in the current study gave a good evaluation in terms of ventilation (5.1% strongly disagree - 37.5% strongly agree) (16 - 118 frequency), lighting (2.5% strongly disagree - 18.4% strongly agree) (8 - 58 frequency), fire protection equipments (5.4% strongly disagree - 21.9% strongly agree) (17 - 69 frequency), emergency entrances and exits (3.8% strongly disagree - 34.3% strongly agree) (12 - 108 frequency), stairs (1.9% strongly disagree - 16.8% strongly agree) (6 - 53 frequency), and electrical wires (4.8% strongly disagree - 17.5% strongly agree) (15 - 55 frequency). As for the central heating and cooling system (14.6% strongly disagree - 26.7% strongly agree) (46 - 84 frequency), elevators (11.1% strongly disagree - 14.0% strongly agree) (35 - 44 frequency), furniture (11.7% strongly disagree - 17.5% strongly agree) (37 - 55 frequency), safe atmosphere inside the hospital (15.9% strongly disagree - 14.3% strongly agree) (50 - 45 frequency), and satisfaction with work in the hospital (14.6% strongly disagree - 26.7% strongly agree) (46 - 84 frequency), the evaluation of the study samples for these paragraphs was moderate. Meanwhile, the study samples were poorly evaluated with regard to noise (25.7% strongly disagree - 9.2% strongly agree) (81 - 29 frequency), noise disturbance and fatigue (36.8% strongly disagree - 4.8% strongly agree) (116 - 15 frequency) and sterilization cabinets at the hospital exits and entrances (42.2% strongly disagree - 6.3% strongly agree) (133 - 20 frequency).

Tabl 1 : Distribution of samples answers to the work environment (workplace)

NO	An evaluation question	Responses	F.		M	EVA
				%		
1	Is the ventilation good and adequate?	Strongly disagree	16	5.1	3.66	Good
		Disagree	60	19.0		
		Neutral	56	17.8		
		Agree	65	20.6		
		Strongly agree	118	37.5		
2	Is the lighting good and available?	Strongly disagree	8	2.5	3.69	Good
		Disagree	40	12.7		
		Neutral	53	16.8		
		Agree	156	49.5		
		Strongly agree	58	18.4		
3	Is there a central heating and central cooling system?	Strongly disagree	46	14.6	3.30	Moderate
		Disagree	58	18.4		
		Neutral	50	15.9		
		Agree	77	24.4		
		Strongly agree	84	26.7		
4	Are there means and equipment to prevent fire?	Strongly disagree	17	5.4	3.80	Good
		Disagree	12	3.8		
		Neutral	56	17.8		
		Agree	161	51.1		
		Strongly agree	69	21.9		
5	Are there emergency entrances and exits in the building?	Strongly disagree	12	3.8	4.03	Good
		Disagree	12	3.8		
		Neutral	37	11.7		
		Agree	146	46.3		
		Strongly agree	108	34.3		
6	Are stairs safe and usable?	Strongly disagree	6	1.9	3.81	Good
		Disagree	14	4.4		
		Neutral	68	21.6		
		Agree	174	55.2		
		Strongly agree	53	16.8		
7	Are electric lifts usable?	Strongly disagree	35	11.1	3.11	Moderate
		Disagree	55	17.5		
		Neutral	109	34.6		
		Agree	72	22.9		
		Strongly agree	44	14.0		
8	Are electrical wires not exposed and damaged?	Strongly disagree	15	4.8	3.57	Good
		Disagree	33	10.5		
		Neutral	80	25.4		

		Agree	132	41.9		
		Strongly agree	55	17.5		
9	Are there comfortable furniture in the workplace?	Strongly disagree	37	11.7	3.12	Moderate
		Disagree	69	21.9		
		Neutral	82	26.0		
		Agree	72	22.9		
		Strongly agree	55	17.5		
10	Is there a noise in the workplace?	Strongly disagree	81	25.7	2.40	Poor
		Disagree	118	37.5		
		Neutral	54	17.1		
		Agree	33	10.5		
		Strongly agree	29	9.2		
11	Does the noise cause you any fatigue or inconvenience	Strongly disagree	116	36.8	2.11	Poor
		Disagree	106	33.7		
		Neutral	51	16.2		
		Agree	27	8.6		
		Strongly agree	15	4.8		
12	Does your workplace have a good security atmosphere?	Strongly disagree	50	15.9		Moderate
		Disagree	65	20.6		
		Neutral	96	30.5	2.95	
		Agree	59	18.7		
		Strongly agree	45	14.3		
13	Is there a sterilization cabin at the exits and entrances of the hospital buildings?	Strongly disagree	133	42.2	2.18	Poor
		Disagree	71	22.5		
		Neutral	53	16.8		
		Agree	38	12.1		
		Strongly agree	20	6.3		
14	In general, are you satisfied with your work environment inside the hospital?	Strongly disagree	46	14.6	3.03	Moderate
		Disagree	58	18.4		
		Neutral	50	15.9		
		Agree	77	24.4		
		Strongly agree	84	26.7		

The means and tools used for prevention

reports the answers of the study samples on the subject of means and tools used in protecting health. The study samples gave good evaluation regarding the two items of mask use to prevent infection and disease at work (10.8% strongly disagree - 21.0% strongly agree) (34 - 66 frequency) and the need to wear a face mask at work (3% strongly disagree - 55.2% strongly agree) (1 - 174 frequency). While, the study samples were evaluated moderately on all the following paragraphs, the efficiency of sterilization of the tools used (10.5% strongly disagree - 26.3% strongly agree) (33 - 83 frequency), work confidently when using work equipment and machines (12.1% strongly disagree - 17.8% strongly agree) (38 - 56 frequency), the availability of vaccines against infectious diseases on an ongoing basis (8.6%

strongly disagree - 17.8% strongly agree) (27 - 56 frequency), the availability of means of preventing disease on an ongoing basis (16.8% strongly disagree – 11.4% strongly agree) (53 - 36 frequency), the suitability of protective clothing and equipment (15.6% strongly disagree - 12.4% strongly agree) (49 - 39 frequency), the sterilization and disinfection of the hospital well every day (12.1% strongly disagree - 10.5% strongly agree) (38 - 33 frequency), the effectiveness of sterilization materials against pathogens (12.4% strongly disagree - 8.6% strongly agree) (39 - 27 frequency), the effectiveness of the method of sterilizing hospital buildings using sterilization materials of international origin (14.3% strongly disagree - 7.3% strongly agree) (45 - 23 frequency), wearing clothes resistant to infection (9.5% strongly disagree - 13.7% strongly agree) (45 - 23 frequency), the effectiveness of the preventive kit against infection and its causes (9.5% strongly disagree - 13.7% strongly agree) (30 - 34 frequency), and the need to wear special shoes during work (12.7% strongly disagree - 22.5% strongly agree) (40 - 71 frequency).

Table 2: Distribution of samples answers to the means and tools used for prevention

NO	Evaluation questions	Responses				EVA
		F.	%	M		
1	Are the tools used sterilized well?	Strongly disagree	33	10.5	3.36	Moderate
		Disagree	49	15.6		
		Neutral	89	28.3		
		Agree	61	19.4		
		Strongly agree	83	26.3		
2	Do you work with trust and confidence when using work equipment and machines?	Strongly disagree	38	12.1	3.26	Moderate
		Disagree	47	14.9		
		Neutral	81	25.7		
		Agree	93	29.5		
		Strongly agree	56	17.8		
3	Are vaccines available against infectious diseases on a continuous basis?	Strongly disagree	27	8.6	3.38	Good
		Disagree	34	10.8		
		Neutral	102	32.4		
		Agree	96	30.5		
		Strongly agree	56	17.8		
4	Are the means to prevent the disease available continuously?	Strongly disagree	53	16.8	3.03	Moderate
		Disagree	48	15.2		
		Neutral	86	27.3		
		Agree	92	29.2		
		Strongly agree	36	11.4		
5	Are protective clothing and equipment appropriate	Strongly disagree	49	15.6	3.10	Moderate
		Disagree	40	12.7		
		Neutral	95	30.2		
		Agree	92	29.2		
		Strongly agree	39	12.4		
6	Are masks good for preventing	Strongly disagree	34	10.8		G

	infection and disease at work?	Disagree	32	10.2	3.46		
		Neutral	71	22.5			
		Agree	112	35.6			
		Strongly agree	66	21.0			
7	Is the hospital sterilized and disinfected well every day?	Strongly disagree	38	12.1	2.91	M	
		Disagree	81	25.7			
		Neutral	100	31.7			
		Agree	63	20.0			
		Strongly agree	33	10.5			
8	Are sterilization materials effective against pathogens?	Strongly disagree	39	12.4	2.93	Moderate	
		Disagree	52	16.5			
		Neutral	142	45.1			
		Agree	55	17.5			
		Strongly agree	27	8.6			
9	Is the specific method of sterilizing and fogging buildings ideal, using sterilization materials of discreet global origin?	Strongly disagree	45	14.3	2.77	Moderate	
		Disagree	74	23.5			
		Neutral	129	41.0			
		Agree	44	14.0			
		Strongly agree	23	7.3			
10	Do you Wear protective clothing from infection and its causes?	Strongly disagree	33	10.5	3.30	Moderate	
		Disagree	37	11.7			
		Neutral	105	33.3			
		Agree	84	26.7			
		Strongly agree	56	17.8			
11	Is the preventive kit effective in the prevention of infection and its causes?	Strongly disagree	30	9.5	3.28	Moderate	
		Disagree	44	14.0			
		Neutral	91	28.9			
		Agree	107	34.0			
		Strongly agree	43	13.7			
12	Does your job require you to wear special shoes while working?	Strongly disagree	40	12.7	3.25	Moderate	
		Disagree	62	19.7			
		Neutral	64	20.3			
		Agree	78	24.8			
		Strongly agree	71	22.5			
13	Is your job requires the wearing of a face mask?	Strongly disagree	1	0.3	4.40	Good	
		Disagree	8	2.5			
		Neutral	28	8.9			
		Agree	104	33.0			
		Strongly agree	174	55.2			

The commitment to using protective equipment and means in hospitals.

shows the commitment of workers to use equipment and preventive means in hospitals. The answers of the study samples were moderate to most of the paragraphs of this topic, which include, commitment to use and suitability of preventive measures (29.2% strongly disagree - 5.1% strongly agree) (92 - 16 frequency), suitability of protective equipment while wearing it at work(14.0% strongly disagree - 8.6% strongly agree) (44 - 27 frequency), failure to adhere to preventive methods as it is useless to use them (11.7% strongly disagree - 21.3% strongly agree) (37 - 67 frequency), lack of commitment to using prevention methods because they are not sterile (12.7% strongly disagree - 16.8% strongly agree) (40 - 53 frequency), and non-commitment to use Preventive measures due to the absence of binding and deterrent laws (18.4% strongly disagree - 21.6% strongly agree) (58 - 68 frequency). The study samples responded poorly towards the paragraph of non-use of means of prevention due to their absence laws (18.4% strongly disagree - 21.6% strongly agree) (58 - 68 frequency). The study samples gave a good answer about the clause not to use safety precautions for not knowing how to use them (11.1% strongly disagree - 23.2% strongly agree) (35 - 73 frequency).

Table 3: Distribution of samples answers to workers 'commitment to using protective equipment and means in hospitals.

NO	Evaluation questions	Responses	F.	%	M	EVA
1	Is not using the means of prevention due to the lack of it?	Strongly disagree	58	18.4	2.40	Poor
		Disagree	84	26.7		
		Neutral	71	22.5		
		Agree	34	10.8		
		Strongly agree	68	21.6		
2	Are you not obligated to use preventive measures due to their inadequacy and suitability?	Strongly disagree	92	29.2	2.77	Moderate
		Disagree	74	23.5		
		Neutral	96	30.5		
		Agree	37	11.7		
		Strongly agree	16	5.1		
3	Is protective equipment comfortable while wearing it at work?	Strongly disagree	44	14.0	2.74	Moderate
		Disagree	99	31.4		
		Neutral	95	30.2		
		Agree	50	15.9		
		Strongly agree	27	8.6		
4	Are you not commit to using preventive methods, because in your opinion there is no point in using them?	Strongly disagree	37	11.7	3.23	Moderate
		Disagree	70	22.2		
		Neutral	58	18.4		
		Agree	83	26.3		
		Strongly agree	67	21.3		
5	Do not use safety precautions because you do not know how to use them	Strongly disagree	35	11.1	3.40	Good
		Disagree	44	14.0		
		Neutral	69	21.9		

		Agree	94	29.8		
		Strongly agree	73	23.2		
6	Do not stick to using prevention methods because they are not sterile?	Strongly disagree	40	12.7	3.24	Moderate
		Disagree	50	15.9		
		Neutral	71	22.5		
		Agree	101	32.1		
		Strongly agree	53	16.8		
7	Do not comply with the use of preventive measures, as there are no binding and deterrent laws	Strongly disagree	70	22.2	2.90	Moderate
		Disagree	84	25.3		
		Neutral	70	22.2		
		Agree	31	9.8		
		Strongly agree	60	19.0		

Discussion

The present table shows that the frequency, percentage, mean of the score, and assessment. This finding may be because most health workers who work in hospitals don't Participant in the training course concerning occupational health and safety programs.

Presents the items of response according to descriptive analysis and the present table indicated the mean and stander devotion among all items. This result reveals that all participants have a moderate level of knowledge according to the mean of answer each item.

The shows that most of the health worker had a moderate response for tools used for prevention, this finding disagree with a study conducted in Kurdistan region by [8] reported that the nurse's staff had a poor performance of using PPE. The finding of the present study also disagrees with the study done by [9] in Egypt. In the evaluation of the means and tools used for prevention, the majority of participant their response was 40.3% moderate and the same percentage was 40.3%, while the mean of scores indicates to (3.2635) the mean consider as moderate level. These findings at least in the same line with a study carried out by [10] who found that inadequate knowledge about organizational policies about the use of personal protective equipment. This was presented through the participates to shortage of adequate training programs on safety measures and non-availability of individual protective wears and unawareness among others.

In the prevention of workplace hazards, health worker's knowledge, attitudes, and beliefs are paramount if any success in containment is to be achieved. This table showed that mean of score indicates that mean scores mentioning to moderate evaluation level among half items. The suggested reasons for health workers moderate knowledge about PPE included a lack of health care workers training and paucity of retraining of health care workers on PPE, lack of

expertise to conduct this training, and a false assumption that epidemics of contagious diseases are rare and acquiring related knowledge may be a futile effort. Perhaps the findings could also represent higher visibility of younger digital native health workers to access readily available up-to-date information on PPE compared with the older digital native colleagues who use a more rigorous process to access information from textbooks and journal articles. Perhaps, the disproportionate involvement of older colleagues with nonclinical responsibilities such as managerial duties in addition to the aforementioned reason may also be suggested for the disparity observed among the age groups. This table reported that health workers' commitment to using protective equipment and means in hospitals (2.9551), the widely held of the study sample (35.9%) a poor level. The poor response towards using PPE is concerning, nosocomial COVID-19 infections among health care workers will have negative consequences in low-middle-income countries like Iraq, where there is already an inadequate supply of healthcare personnel. The poor attitudes towards PPE use may be due to nonavailability, increased pressure on merger consumables, or global shortage of PPE, as approximately most of the respondents were willing to use PPE if it was made available by the facility.

Conclusions

1. The work environment was moderate to some extent, but it was not at the level required to reach a safe environment in which all necessary safety means are available to avoid injury in occupational hazards.
2. The means of prevention and safety are available in government hospitals to a moderate degree, but they need to be developed.
3. The more safety and prevention means are available, the greater the commitment of the workers to use them, as it was found that the lack of commitment of the workers to the use of the means of prevention is largely due to the lack of them and also related to the availability of guidelines and regulations for prevention and safety in hospitals

4. Recommendation

1. The necessity of providing a safe and risk-free work environment.
2. Providing protection and safety tools and the necessity of committing to using the protective equipment and means available in hospitals. (Headgear, closed shoes, gloves, and frequent medical examination for "infectious diseases" transmitted through blood such as (Hepatitis and AIDS) or by respiratory droplets such as (COVID19,

tuberculosis) to prevent diseases transmitted from patients.

3. The current study suggests holding monthly meetings with public health and occupational health officials to discuss all weaknesses and find a way to solve them.

References

- [1] Pittet D, Allegranzi B, Storr J (2008) Infection control as a major World Health Organization priority for developing countries. *J of Hospital Infection* 68: 285-292. [2] F. dos S. de Sá, C. D. L. Oliveira, D. de M. Fernandino, C. A. M. de Pádua, and C. S. Cardoso, "Assessment of primary health care from the perspective of patients hospitalized for ambulatory care sensitive conditions," *Fam. Pract.*, vol. 33, no. 3, pp. 243–248, 2016, doi: 10.1093/fampra/cm096.
- [2] Baqi S, Damani NN, Shah SA, Khanani R (2009) Infection control at a government hospital in Pakistan. *Int J Infect Control* 5: 1-7
- [3] Ndejjo, R., Musinguzi, G., Yu, X., Buregyeya, E., Musoke, D., Wang, J.S., Halage, A.A., Whalen, C., Bazeyo, W., Williams, P. and Ssempebwa, J., 2015. Occupational health hazards among healthcare workers in Kampala, Uganda. *Journal of environmental and public health*, 2015.
- [4] Neo, F., Edward, K.L. and Mills, C., 2012. Current evidence regarding non-compliance with personal protective equipment-an integrative review to illuminate implications for nursing practice. *ACORN: the journal of perioperative nursing in Australia*, 25(4), p.22.
- [5] Hämäläinen, P., Saarela, K.L. and Takala, J., 2009. Global trend according to estimated number of occupational accidents and fatal work- related diseases at region and country level. *Journal of safety*.
- [6] D.Malik Dhahir1 , Naji Yasser Al Mayahi2, "Assessment of Health Workers Knowledge toward Occupational Health and Safety Program in Alkut City's Primary Health Care Centers", *MLU*, vol. 21, no. 1, pp. 1536-1541, Jan. 2021.
- [7] Al-Qaisi, M., 2009. Backache as one of occupational hazards and diseases among 900 dentists in Baghdad city. *Journal of baghdad college of dentistry*, 21(2), pp.109-113.
- [8] Bayan Omar Sharif, Frishta M. Khdir, Padasht M. Khdir, Sarezh A. Rasul, Evaluation of Nurses' Performance Regarding Personal Protective Equipment at Rania Teaching Hospital, *Kurdistan Journal of Applied Research (KJAR)*2019 Print-ISSN: 2411-7684 | Electronic-ISSN: 2411-7706
- [9] S. Hakim, N. Abouelezz, and E. J. E. J. O. M. El Okda, "Use of personal protective devices among health care workers in a teaching hospital in Cairo, Egypt," vol. 40, no. 2, pp. 287-300, 2016.
- [10] Seidat Moyosore Ogunnaike, Margaret Omowaleola Akinwaare, Occupational hazard preventive measures among nurses in a Nigerian tertiary health institution, Department of Nursing, College of Medicine, University of Ibadan, Ibadan, Nigeria, February 07, 2019 | Published: February 14, 2019