

## Health Care Workers Knowledge towards use of PPE during Communicable Diseases in Al Hilla Teaching Hospitals/ Iraq

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### Abstract

Personal protective equipment (PPE) continues to play an integral role in prevention of transmission of infection in the healthcare setting. This study aims to assess knowledge related to use of PPE during communicable diseases among health care provides; and to determine the relationship between health care providers knowledge, practice and their demographic data. Methodology: A descriptive study design using a convenience random sample of (N=200) health workers. According to the Babylon Health Directorate, this sample is distributed throughout two hospitals (Hill and Marjan teaching Hospital). The questionnaire includes a total of 20 knowledge objects and 25 practice items. Data were gathered using the self-report questionnaire and analyzed through the used the descriptive and inferential statistical method. Results: Recent findings indicate that overall (71%) of health care providers were good knowledge. The educational attainment and workplace have been relationship with knowledge at p-value <0.05. Conclusion: Health care providers by the overall, knowledge were satisfactory knowledge towards the used PPE during communicable diseases. The knowledge affected by education level and workplace. More years of experience in training the staff on infection control by local officials help raising professionals' health workers knowledge and practice. Provide the health resources and exploiting young energies of nurses which indeed helps to develop their knowledge and practice.

**Keywords:** Health Care Workers, PPE, Communicable Diseases

### INTRODUCTION

In developing countries, hospital-acquired infections (nosocomial infections) are common, and healthcare workers are often killed by them. In many nations, the health system is heavily reliant on a small number of health professionals <sup>[1]</sup>. This human capital is incredibly important. As a result, any attempt to safeguard a country's health workers also preserves the country's health infrastructure and long-term investment in health <sup>[2]</sup>. In the healthcare environment, personal protective equipment (PPE) continues to play an important role in preventing infection transmission <sup>[3]</sup>. PPEs function as a physical barrier between the wearer and the microbes. PPEs are intended to keep workers safe from

severe occupational accidents or illnesses caused by chemical, radiological, physical, electrical, mechanical, or other hazards. Gloves, surgical masks, head covers, lead aprons, isolation gowns, and needles, destroyers, hand disinfectants, safety glasses, safety shoes etc. are among them <sup>[4]</sup>. According to the Work Health and Safety Regulations of 2012, it is the responsibility of each healthcare worker (HCW) to be familiar with and observe these security measures at all times when a risk of exposure has been detected <sup>[5]</sup>.

## METHODOLOGY

In order to explore knowledge of health care workers about use personal protective equipment during communicable diseases, a quantitative descriptive analysis used assessment and evaluation approach. Through the use non-probability sampling method, a convenience random sample of (200) subjects is chosen from different areas within a hospital such as emergency department, isolation, ICU, and surgical words from both morning and evening shift. Data were collected through the use of a questionnaire (Arabic version) and self-report of the health care providers (for knowledge assessment). Through the application the descriptive and dedicative statistic, data were analyzed. "Frequencies and percentages, mean of score (Mean); and Chi. Square test"

Mean <1.5 considered Poor knowledge

Meam $\geq$ 1.5 considered Good knowledge

They  $\chi^2_{obs.} < \chi^2_{crit.}$  = insignificant

They  $\chi^2_{obs.} > \chi^2_{crit.}$  = significant

## RESULTS

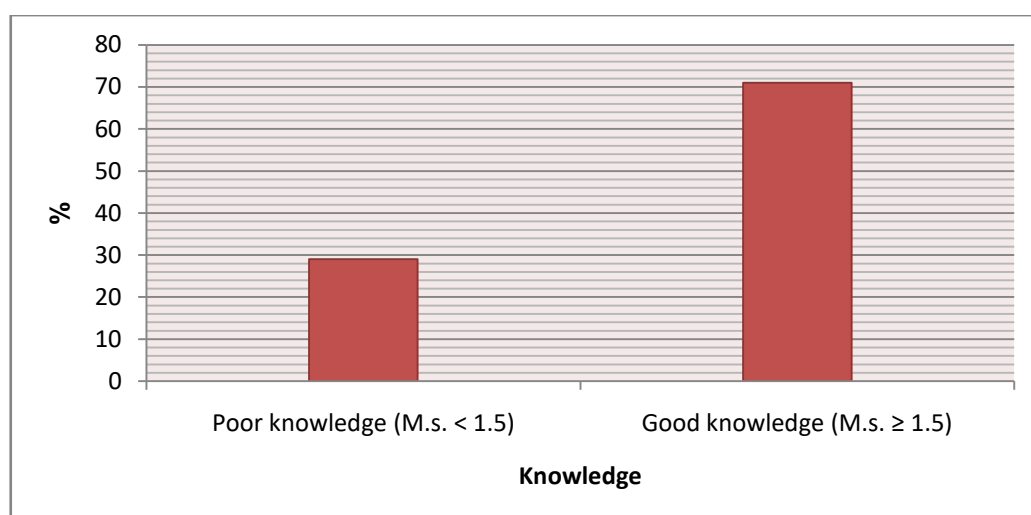
**Table1:Descriptive Statistic of Demographic Variables(N=200)**

Demographic Variables	Rating	F.	%
<b>Gender</b>	Male	89	44.5
	Female	111	55.5
	Total	200	100.0
<b>Age/years</b>	20-29 years old	163	81.5
	30-39 years old	32	16.0
	40 and older	5	2.5
<b>Educational Attainment</b>	Secondary Nursing	21	10.5
	Diploma	87	43.5

	Bachelors	87	43.5
	Graduate Studies	5	2.5
<b>Workplace</b>	Emergency	55	27.5
	Isolation Words	37	18.5
	ICU	59	29.5
	Surgical Words	49	24.5
<b>Years of Experience</b>	<5 years	114	57.0
	5-10 years	42	21.0
	>10 years	44	22.0
<b>Job Description</b>	Doctor	24	12.0
	Nurses	139	69.5
	Laboratory Analyst	15	7.5
	Anesthetic	22	11.0
<b>Training Sessions</b>	No trained	115	57.5
	One session	81	40.5
	More than one	4	2.0

This table represents the descriptive statistics of socio-demographic information of the health care providers in term of frequencies and percentage. Of the (200) subjects that participated in this research.

Analysis shows that the bulk (47.5 percent) was bad practice at mean $\pm$  S.d.= 1.58 $\pm$ 00.596.



**Figure 1: Overall Knowledge towards the use of PPE**

**Table 2: Analysis between Health Care Workers Knowledge and Demographic Variables**

Gender	Rating	HCWs Knowledge		d.f	Sig.	
		Incorrect	Correct			
	Male	25	64	1	$\chi^2$ obs.= 0.065 $\chi^2$ crit.= 3.841 P-value=0.80	NS
	Female	33	78			
Age	20-29 years old	49	114	2	$\chi^2$ obs.= 0.535 $\chi^2$ crit.= 5.991 P-value=0.765	NS
	30-39 years old	8	24			
	40 and older	1	4			
Education level	Secondary Nursing	2	19	3	$\chi^2$ obs.= 71.077 $\chi^2$ crit.= 7.815 P-value=0.000	HS
	Diploma	52	35			
	Bachelors	4	83			
	Graduate Studies	0	5			
Workplace	Emergency	20	35	3	$\chi^2$ obs.= 14.646 $\chi^2$ crit.= 7.815 P-value=0.002	HS
	Isolation Words	11	26			
	ICU	23	36			
	Surgical Words	4	45			
experience	<5 years	27	87	2	$\chi^2$ obs.= 4.673 $\chi^2$ crit.= 5.991 P-value=0.097	NS
	5-10 years	13	29			
	>10 years	18	26			
Job	Doctor	10	14	3	$\chi^2$ obs.= 3.822 $\chi^2$ crit.= 7.815 P-value=0.281	NS
	Nurses	35	104			
	Laboratory Analyst	6	9			
	Anesthetic	7	15			
Training	No trained	34	81	2	$\chi^2$ obs.= 0.063 $\chi^2$ crit.= 5.991 P-value=0.969	NS
	One session	23	58			
	More than one	1	3			
	Total	200				

" $\chi^2$  obs. = Chi-square observer,  $\chi^2$  crit. = Chi-square critical, Df= Degree of freedom, P-value= Probability value, S= significant, NS= non- significant, S= significant, HS= high significant".

## DISCUSSION

The demographics characteristics of the study sample showed that more than half of HCWs (55.5%) were females due to the male more responses to participants in the study. While study conducted in Gondar and deals with health care workers regarding infection prevention. Their findings depicts that most of the study participants were male among, constituted (50.7%) were male <sup>[6]</sup>. In another study among Yemeni nurses' showed that the proportion of female (51.9%) to male (48.1%) were nearly equal <sup>[7]</sup>.

Out of 200 subjects participating in this study, their age ranged from 20-29 years old and made up (81.5 percent) as a higher percentage at mean $\pm$  S.d= 26.86 $\pm$ 3.607, while the age  $\geq$  40 years composed lowest percentage out total of study sample. This results come due to the increasing number of graduates from medical institutes and colleges in Iraq and their enrollment in the directly job more than before. These findings agreed with study conducted Tripura deals with hospital acquired infection knowledge. Findings depicts majority of the study participants were from 18 to 25 years age group (70.7%) <sup>[8]</sup>.

The presence of institutes in most of the governorates and the graduation of batches of morning and evening study in large numbers in addition to the presence of several departments and various specialties It is clear from the findings that more than half of the study sample were diplomas and bachelors graduated, for both of them, it reflected (43.5 percent). Many previous studies were in agreement with this result, Okwii (2017), found diploma health care workers constituted 48.9% as a majority. In Middle-East Hospital found that majority of respondents depicts to have diploma which indicate of 63.6% (n = 42) <sup>[9]</sup>.

The distribution of study participants by employer was predominant among health care staff who work at the ICU, showing (29.5 percent) out of the total number of sample due to, these units were mostly important and critically need to be disinfection. While in study Okwii (2017), stated that 30.7% of the respondents were from the medical ward, 26.1% were from Pediatrics, 21.6% from surgery, and 21.6% from accident and emergency <sup>[9]</sup>.

Results suggest that (57 percent) have less than 5 years as a prevailing finding in terms of years of experience. Health care staff were less than one year with their current working experience. Because of new hires and the exploitation of young energies among those with working experience >5 years were about 85 respondents (43.4%) in study conducted in Yemen and assessed the standard precautions and nosocomial infection be (Gawad, 2017). In Palestinian Hospitals, the participants deals with infection control measures have less than five years of experience (43.9%) <sup>[10][11]</sup>.

The findings show the distribution of the studied sample according to description, results show that most of the participants in the study were nurses, it represented (69.5 percent) of the total

number of participants. As being the nurses were considered the major proportion of staff in health organization, due to the large number of institutions that graduate such department. findings come with study of Fatimah (2020) found the highest proportion of health workers in Al-Kut hospital 39.1% were nurses compared to 36.8% of health workers in Al-Karamah teaching hospital were technician <sup>[12]</sup>.

The participation in a training sessions in Iraq is diminished due to the political and economic limitation and this is controlled by the policy of the minister of health of Iraq. Most health care workers (57.5 percent) were not qualified in terms of training sessions. This results matched with cross-sectional study conducted by Yazie et al., (2019), who found that more than half 55.3% of the study participants were untrained, it is only 44.7% of them were taken training regarding infection prevention and safety in northwest Ethiopia. Approximately, two thirds of the studied sample 63.8% never attends any continuing education courses about infection control in study of Ayed (2015) <sup>[6][10]</sup>.

### **Discussion the HCWs knowledge Regarding Use PPE During Communicable Diseases**

According to analysis mean, our findings reveals that (71%) of health care providers were good level of knowledge. The satisfactory level of knowledge due to addressed these topics during their preliminary studies regarding communicable diseases. However, the presence of a percentage (29) of them with poor knowledge due to the different educational levels in the study sample and decreased to attend training courses. This findings agree with tertiary care hospital of Tripura records the 84.3% had knowledge about personal protective equipment to prevention of hospital acquired infection <sup>[8]</sup>. While, in Trinidad and Tobago, records the knowledge about infection control were inadequate in regards the unavailable of medical facilities <sup>[13]</sup>.

Previous studies such as, El-Sayed et al., (2015) the study carried out in Cairo Egypt, the results of this study which indicated the most of the study sample 80% had a satisfactory level of knowledge due to frequent training sessions <sup>[14]</sup>.

### **Discussion Relationships between Health Care Workers Knowledge and Socio-demographic Characteristics**

Our findings indicate the there is no significant relationship between the health care providers knowledge and their gender, age, current workplace, job description and training sessions at p-value >0.05. As well as, the health care providers educational attainment and workplace have been significantly related to their knowledge at p-value <0.05. The differences in the specialized aspects leads to differences in knowledge, there are many disciplines that were covered in our study, so we found significant differences. Our findings come with study conducted in Baghdad City. There is significance relationship at P <0.05 between nurse's educational level and their knowledge toward nosocomial infection due to the difference in the educational level of the health care providers

category <sup>[15]</sup>. In Tamil Nadu, work areas were the major factors affected health care workers knowledge appropriate use of gloves, mask, apron, gown and hair cover were different from wards to another within the hospital, health care workers in critical care units were significant influence the workers knowledge ( $p=0.05$ ) <sup>[16]</sup>.

## CONCLUSION

Health care providers by the overall, knowledge were satisfactory knowledge towards the used PPE during communicable diseases. The knowledge affected by education level and workplace. More years of experience in training the staff on infection control by local officials help raising professionals' health workers knowledge and practice. Provide the health resources and exploiting young energies of nurses which indeed helps to develop their knowledge and practice.

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