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KNOWLEDGE, ATTITUDE AND PRACTICES OF PERSONAL PROTECTIVE EQUIPMENT AMONG HEALTH CARE PROVIDERS OF TERTIARY CARE HOSPITAL

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ABSTRACT

Background: *Personal protective equipment (PPE) is meant to keep health care workers safe at work from dangerous infections and injuries. Personal protective equipment (PPE) is clothing that you wear to protect yourself from germs. This barrier reduces the chances of pathogens being touched and spread. In the hospital, personal protective equipment (PPE) helps to prevent the transmission of germs. This can help to keep people and health-care workers safe from infection. PPE give a physical hindrance among microorganisms and health care providers.it offered assurance by keeping microorganisms from polluting hands, eye, dress, hairs and shoes.*

Objective: *To access the knowledge, attitudes, and practices of personal protection equipment among health care providers in tertiary care hospital.*

Methodology:*A descriptive cross sectional study in which doctors, nurses and allied health professional included. To access health care providers' knowledge, attitudes, and practices about personal protection equipment in a tertiary hospital. Non-medical staff working in hospital are exclude in this study. The data was analyzed by SPSS version 23.*

Result: *This study included 250 health care worker participate, in which doctors, nurses and allied health professional and they were a knowledge about personal protective equipment and they know how to use PPEs. Health care workers used all necessary PPEs such as (gloves, gown, mask, face shield, head cover and shoe cover) during work. In which 91 health care workers Always (100% of the time) used of all necessary PPEs during work, 114 health care workers Frequently (75% - Less than 100% of the time) used of all necessary PPEs during work, 45 health care worker (50% - Less than 75% of the time) used of all necessary PPEs during work. Some Inhibiting factors that inhibit the health care workers to used PPE is 50 Forgetfulness, 25 Disturb working, 199 Uncomfortable to wear, 1 Unavailability. Health care workers take training about PPEs and hospital had a policy on PPE.*

Conclusion: *The study concluded that health care workers inclusive of doctors, nurses and allied health professionals had knowledge about personal protective equipment and they know how to use PPEs. Health care workers use all necessary PPEs such as (gloves, gown, mask, face shield, head cover and shoe cover) while working. Most of the health care workers always use all necessary PPEs, Majority of the health care workers frequently used all necessary PPEs, Whereas, very few health care workers sometimes use all necessary PPEs. Factors inhibiting the health care workers from using PPE were in majority cases uneasiness in wearing,*

forgetfulness, disturbed working and unavailability. Health care workers were trained about PPEs as hospital had a policy about the PPEs.

Key words: *personal protective equipment, health care worker, knowledge, attitude, practices.*

INTRODUCTION

Personal protective equipment (PPE) is meant to keep health care workers safe at work from dangerous infections and injuries. Personal protective equipment (PPE) is clothing that you wear to protect yourself from germs. This barrier reduces the likelihood of pathogens being touched and spread. In the hospital, personal protective equipment (PPE) helps to prevent the transmission of germs. This can help to keep people and health-care workers safe from infection. PPE creates a physical barrier between pathogens and the person.it offer assurance by keeping microorganisms from polluting hands, eye, dress, hairs and shoes.[1]

Infection spreads from patients to human services staff, other patients, and attendants as a result of a breach in disease control practices. Gloves, protective eyewear (goggles), mask, apron gown, shoe cover, and hair cover are all examples of personal protective equipment. All medical service providers, support workers, research facility staff, and relatives who provide care to patients should wear PPE in situations when they come into contact with blood, body fluids, or discharges.[1, 2]

Officers might use respirators to protect themselves from toxic synthetic compounds, and Leonardo da Vinci is credited with being the first to invent the respirator in the sixteenth century. Since Da Vinci's invention, respiratory security innovation has become more standard, more reliable, and the National Institute for Occupational Health and Safety (NIOSH) and the Occupational Safety and Health Agency have clearly outlined the requirements for safe devices (OSHA). The N95 respirator mask is a case of NIOSH's association with PPE. It is ordered for use in human services settings that are equipped to treat patients with aspiratory tuberculosis or other respiratory diseases transmissible through the airborne route.[3]

When the Centers for Disease Control and Prevention (CDC) published "Isolation Techniques for Use in Hospitals" in 1970, with a revision in 1975, it became the most widely used PPE. It was designed for use in both small network emergency clinics and large exhibition medical clinics.[4] By the mid-1970s, about 93 percent of medical clinics had adopted these restrictions, which included the use of restricted personal protective equipment (PPE).[5]

By the mid-1980s, new diseases, including safe microscopic organisms, had been developed, and social shield experts were asking for assistance, particularly for special consideration units that appeared to be having problems with these emerging pathogens.[6] The CDC Guideline for Isolation Precautions in Hospitals was published in 1983, and it replaced the 1975 isolation guidebook with important improvements to practice.[7]

Following the human immunodeficiency virus infection, the use of personal protective equipment (PPE) was increased (HIV).[8] In 1985, Universal Precautions (UP) was introduced as a new approach for preventing disease transmission via needle-stick wounds and possible skin contamination.[9] To avoid mucous layer exposure, traditional gloves and suits were extended to include face covers and eye shields.[10]

Manufacturers worked tirelessly to make disposable impregnable suits, latex and vinyl gloves, method masks for use outside the working room, and eye shields to protect mucus membranes for healthcare personnel exposed to blood and body fluids.[11]

It is impossible to overstate the importance of using well-fitting and high-quality PPE in the workplace. A few doctors, such as Sir Thomas Morrison Legge, had mentioned this necessity several years before. He identified the labor employer's and employee's roles in decreasing workplace dangers and, as a result, producing a healthy work environment.[12]

In fact, protecting workers from hazards in the workplace is critical for reducing workplace fatalities and morbidities.[13] The majority of these morbidities and deaths occur after the individual has left the job.[14] As a result, in addition to other control measures, it is critical to assess the employer's compliance with personal protective equipment (PPE).

On October 31, 2014, the WHO issued guidelines that recommended the use of personal protective equipment (PPE) to protect the mucosae - mouth, nose, and eyes – from contaminated droplets and liquids.[15] Given that diseases can be transmitted from hands to various parts of the body, as well as to others, hand hygiene and the use of gloves are essential, both to protect the health worker and to prevent transmission to others. To avoid

transmission to healthcare professionals, face covering, protective footwear, gowns or coveralls, and head covering were also deemed necessary.[16]

Requirement for these PPEs has expanded throughout the years with expending consciousness of work environment risks, and the challenges related with over reliance on other control estimates which for certain operators can't be completely killed or even checked.[12] This is particularly significant in clinic setting where laborers are frequently presented to biohazards and different irresistible specialists like the emergence of life-threatening infections such as the coronavirus, sever acute respiratory syndrome (SARS), and reemerging infection diseases such as plague and tuberculosis has highlighted the need for effective infection control programs in all health care settings, and research into standard precautions has been conducted in many countries.[17, 18]

PPE is used in medical settings to create a barrier between medical care workers and an irresistible specialist from the patient, as well as to reduce the risk of medical care workers transmitting micro life organisms to the patient (s).Furthermore, PPE may be used by the patient's family/guests on occasion, particularly if they are providing direct tolerant care, such as assisting the patient with toileting. Caregivers should be well trained in the use of PPE and hand hygiene in these situations.

By altering normal safety measure standards, nosocomial disease transmitted by direct touch can be avoided. The most cost-effective way to protect yourself against diseases and pollutants is to wear proper PPE.[19] It's vital to assess the degree of consistency in the use of PPE by the many HCPs who interact with patients.

Given the importance of PPE use by HCPs, particularly doctors, allied health professionals, and nurses, it is critical to do research to learn about their PPE knowledge, attitudes, and behaviors. The goal of this study is to see how knowledgeable doctors, allied health professionals, and nursing staff are about personal protective equipment (PPE) and how they use it before patients arrive, as well as how HCWs feel about the necessity of PPE and how they use it at work.

MATERIAL AND METHODS

This study not only provide an insight into the issues, barriers and deficiencies in the use of this very important issue among HCPs but it also provide an opportunity to find out the knowledge, attitudes practices of PPE among HCPs in tertiary care hospitals.

3.1: OBJECTIVE

To assess the knowledge, attitude, and use of personal protective equipment among Health Care Providers of Tertiary Care Hospital.

4.1: Study Design: Descriptive cross sectional study.

4.2: Settings: The research was conducted at the University of Lahore Teaching Hospital (Tertiary Care Hospital)

4.3: Study Duration: Nine month after the approval of synopsis

4.4: Sample Size: A sample size of 250 health care provider was selected by using following formula:

$n=Z^2p\ (1—p)/d^2$

P is anticipated proportion of knowledge, attitude and practices of personal protective equipment among HCWs. =18% [134]

d is the margin of error =0.05.

With a (Cl) confidence interval of 95%,Z=1.96,so Z^2 =1.96 x 1.96=3.84

Sample size (n) calculated was 227 participants. Considering the possible 10% attrition rate, the sample size was increased to 250.

4.5: Sampling Technique:

Random sampling technique was used for study.

4.6: Sample Selection:

4.6.1: Inclusion Criteria:

Doctors. Allied health professionals and nurses were included in this study

4.6.2: Exclusion Criteria:

- Non-medical staff working in hospital were exclude in this study.

4.7: Tests/Equipment(s):

Semi-structured questionnaire adopted from the previous studies was used to collect data. With the help of this questionnaire, information about knowledge, attitude and use of PPE was collected. This questionnaire was consists of following two parts:

In part 1, information about socio-demographic and socio-economic characteristics of respondents were collected

In part 2, specific information about PPE was collected.

4.8: ETHICAL CONSIDRATION

The rules and regulations set by the ethical committee of the University of Lahore were followed while conducting the research and the rights of the research participants were respected.

- Written informed consent attached was taken from all the participants.
- All information and data collection was kept confidential.
- Participants were kept anonymous throughout the study.
- The subjects were informed that there are no disadvantages or risk to the procedure of the study.
- They were also informed that they will be free to withdraw at any time during the process of the study.

4.9: DATA COLLECTION PROCEDURE

It included:

Identification of the study variables

Study variables, both independent and dependent were identified.

Methods for Collection of Data

I. Approval were obtained from the institutional review board of university of Lahore.

II. Subjects fulfilling the inclusion criteria was identified and selected for detailed interview.

III. Socio-demographic and socio-economic characteristicsof respondents was collected with the help of first part of a questionnaire. This was include information about respondent's name, age, gender contact no, address and the department where they are working.

IV.

i. Following specific information about PPE was collected with the help of second part of a questionnaire:

a. Type of PPE used during work
b. Frequency of use during work
c. Practices regarding its usage
d. Enabling factors to PPE use
e. Inhibiting factors to PPE regular use
f. Formal training on PPE use
g. Presence of hospital policy on PPE

Outcome measurement:

Knowledge, attitude and practice of PPE among HCP

Variables:

Dependent variable: Health care providers

Independent variable:

i. Age
ii. Department
iii. Knowledge of PPE
iv. Availability of PPE
v. Type of PPE used during work
vi. Frequency of use during work
vii. Practices regarding its usage
viii. Enabling factors to PPE use
ix. Inhibiting factors to PPE regular use
x. Formal training on PPE use
xi. Presence of hospital policy on PPE

4.10: DATA ANALYSIS PROCEDURE

Statistical Package for the Social Sciences (SPSS) version 23.0 was used to analyzed the data. For categorical variables, the results were reported as percentages and proportions. The mean and standard deviation were used to characterize continuous data (SD).

RESULT

5.1: Age of participants

Result showed that age of 42% of HCPs was between 20 -30 years, 39% were in the range of 30 –40 year, 25% were 40 -50 years old while only 7% were between 50-60 years (Figure5.1).

Figure 5.1: Age of participants with distribution curve

5.2: Gender of participants

Figure showed that 106 (42.40%) were male and 144 (57.60%) were female.

Figure 5.2: Gender of participants

Table5.1: Frequency distribution regarding Information about category of of HCPs

HCPs	Frequency	Percent
Doctor	90	36.0
Allied Health Professionals	79	31.6
Nurses	81	32.4
Total	250	100.0

5.3: Frequency distribution of HCPs

Table showed that total 250 HCPs were working in hospital. Out of these, 90 (36.0%) were Doctors, 79 (31.0 %) were Allied Health Professionals and 98 (31.8%) were Nurses.

Table 5.2: Information about proportion of HCP working in different departments

Departments	Frequency	Percent
Operation Theater	107	42.0
ICU	38	14.9
Emergency	105	41.2
Total	250	98.0

5.4: Information about HCP working in different departments

Table showed that out of 250 allied health worker, 107(42.0%) were working in Operation Theater, 38 (14.9%) in ICU and 105 (41.2%) in Emergency.

Table 5.3: Frequency distribution of usage of PPEs during work

	Frequency	Percent
Always (100% of the time)	91	36.4
Frequently (75% of the time)	114	45.6
Sometimes (50% of the time)	45	18.0
Total	250	100.0

5.5: usage of PPEs during work

This table showed frequency of uses of all necessary PPEs during work. Out of 250, 91(35.7%) used it all the time while 114 (44.7%) used these in 75%, 45 (17.6%) used in 50% of times.

Table5.4: Frequency distribution of usage of PPEs by HCPs during work

	Always (100% of the time)	Frequently (75% of the time)	Sometimes (50% of the time)	Total
Doctor	28	45	17	90
Allied Health Professionals	31	32	16	79
Nurses	32	37	12	81
Total	91	114	45	250

5.6: usage of PPEs by HCPs during work

This table showed frequency of PPE usages by Doctors, Allied Health Professionals and Nurses during work. According to this table, 28 doctors used PPE all the time (100% of the time), 45 doctors used these frequently (75% of the time) while17 doctors used it sparingly (50% of the time). In comparison, 31 Allied Health Professionals used these all the time (100% of the time), 32 used these mostly (75% of the time) 16 sometimes (50% of the time). As far as nurses were concerned, 32 Nurses used PPE all the time (100% of the time), 37 used these frequently

(75% of the time) and 12 used these sometimes (50% of the time).

Table 5.5: Frequency distribution of usage of components of PPE by HCPs

PPE	Gloves No (%)	Head cover No (%)	Mask No (%)	Goggles No (%)	Shoe cover No (%)	Gown No (%)
Yes	199 (78)	172 (67.5)	250 (98)	57 (22.4)	191(74.9)	161 (63.1)
No	51 (20)	78 (31.2)	5 (2)	192 (75.3)	59 (23.1)	89 (34.9)
Total	250 (89)	250 (98)	255 (100)	249 (97.6)	250 (98)	250 (98)

5.7: Usage of components of PPE by HCPs

Table showed that PPE (Gloves) were used by 199 (78%) HCW while these were not used by 51 (20%). Head cover was used by172 (67.5%) while 78 (31.2%) did not used it. Similarly mask were used by 250 (98%) HCWs while non-use of this was found in 5 (2%) people. Goggles were used by 57 (22.4%) and 192 (75.3%) did not used it. Shoe cover was used by 191(74.9%) while Gowns were used by 161 (63.1%) HCWs.

Table 5.6: Proper practices of PPE usage

Proper practices	Hair completely covered No (%)	Gown tied at the back No (%)	Gloves changed between procedure on same patient No (%)	Gloves removed before leaving patient bedside No (%)	Correct size gloves use No (%)	Upper end of mask fit in glasses No (%)
Yes	236 (92.5)	192	250	249	249	249
No	14 (5.5)	58	5	6	6	6
Total	250 (98)	250 (98)	255 (100)	255 (100)	255 (100)	255 (100)

5.8: Practices of PPE usage

Table showed that hair were completely covered by HCWs during practices by 236 (92.5%) while 192 HCWs did tie the gown at the back during practices, 250 HCWs changed the gloves between procedures on the same patient. It was also found that 249 HCWs used to remove Gloves before leaving patient bedside, 249 used correct size gloves while 249 said that they always f the upper end of the mask underneath the glasses.

Table 5.7: Inhibiting factors for PPE usage by HCPs

Inhibiting factors	Low risk of infection	Forgetfulness	Disturb working	Fail to protect	Uncomfortable to wear	Unaware how to use	Unavailability
Yes	14 (5.5)	50 (19.6)	25 (9.8)	-	199 (78)	-	1 (.4)
No	236 (92.5)	200 (78.4)	225 (88.2)	250 (98)	51 (20)	250 (98)	249 (97.6)
Total	250 (98)	250 (98)	250 (98)	250 (98)	250 (98)	250 (98)	250 (98)

5.9: Inhibiting factors for PPE usage

This table showed the inhibiting factors of using PPE by health care provides. According to this table, 14 (5.5%) HCWs stated low risk of infection, forgetfulness by 50 (19.6%), disturbance in working by 25 (9.8%) and feeling of un-comfortableness by 50 (20%) were the main inhibiting factors for wearing PPE during work. Unavailability was not inhibiting factors for using PPE by HCPs.

5.10: Percentage of PPE, used by HCP

Figure showed that gloves were used by 78% HCPs while 20% did not used it while head cover, masks, goggles, shoe cover and gowns were used by 67.5%, 98%, 22.4%, 74.9% and 63.1% HCPs, respectively.

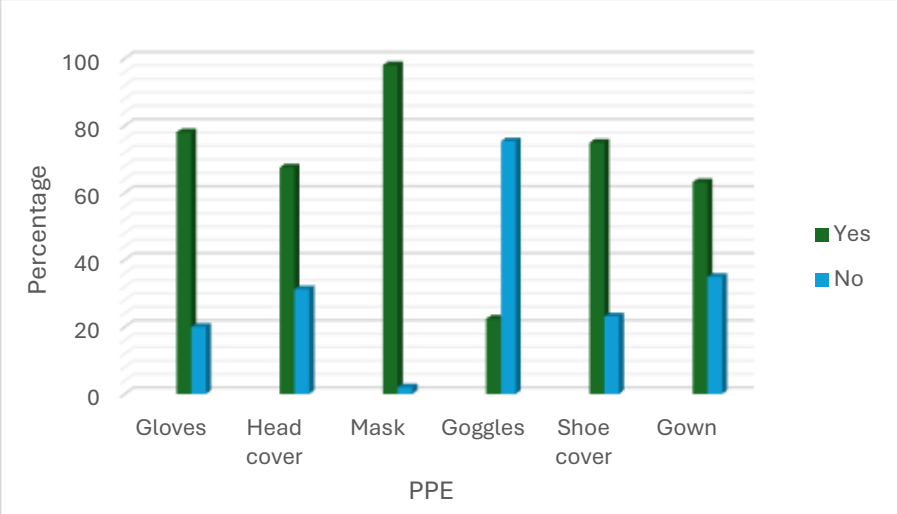

Figure 5.3: Percentage of PPE, used by HCP

5.11: PPE use among male and female

This figure showed that 87 male HCPs used gloves while 19 male HCPs did not used these during work. In comparison, 112 female HCPs used these gloves while and 32 female did not used gloves during work. P-value = 0.405 which shows insignificant association.

Figure 5.4: PPE use among male and female HCPs

5.12: use of PPE in different categories of HCPs

Figure showed that 34, 50 and 23 HCPs working in Operation Theater used PPE all the time 100%, 75% and 50% of the time, respectively. However in ICU, 17, 18 and only one HCP used these always (100% of the time), 75% of the time and 50%, respectively. In contrast, in Emergency, these figures were 40, 46 and 19, respectively. P-value = 0.349 which shows insignificant association.

Figure 5.5: Frequency distribution of use of PPE in different categories of HCPs

5.13: use of PPE (Gloves) in different categories of HCPs

As far as the use of gloves was concerned, figure 5.6 showed that 28% used it always (100% of the time), 36% used it frequently while 15.6% used it sometimes. P-value = 0.403 which shows insignificant association.

Figure 5.6: Frequency distribution of use of PPE (Gloves) in different categories of HCPs

5.14: use of PPE (Head cover) in different categories of HCPs

This figure showed use of head cover by HCPs. According to this figure, 37.2%, 43.6% and 19.2% HCPs used this gadget always (100% of the time), 75% and 50% times, respectively while 34.6%, 43.6% and 15.4% did not used it for 100%, 75% and 50%, respectively. P-value = 0.603 which shows insignificant association.

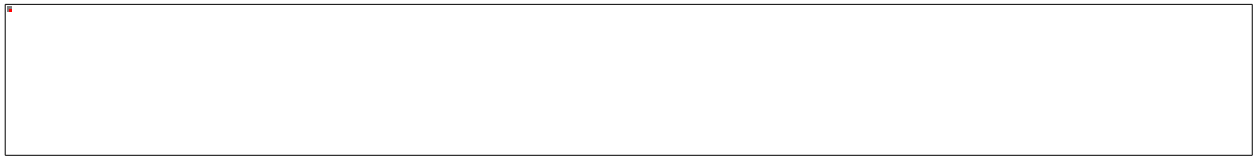

Figure 5.7: Frequency distribution of use of PPE (Head cover) in different categories of HCPs

5.15: Use of PPE (Mask) in different categories of HCPs

This figure showed that 36.4%, 45.6% and 18.0% HCPs used masks always (100% of the time), 75% and 50% times, respectively.

Figure 5.8: Frequency distribution of use of PPE (Mask) in different categories of HCPs

5.16: use of PPE (Goggles) in different categories of HCPs

This figure showed that 43.9% (always), 42.1% (frequently) and 14.0% (sometimes) HCPs used goggles. P-value = 0.350 which shows insignificant association.

Figure 5.9: Frequency distribution of use of PPE (Goggles) in different categories of HCPs

5.17: Use of PPE (Worker's Gown) in different categories of HCPs

This figure showed that 35.4% (always), 46.6% (frequently) and 18% (sometimes) HCPs used gowns. P-value = 0.896 which shows insignificant association.

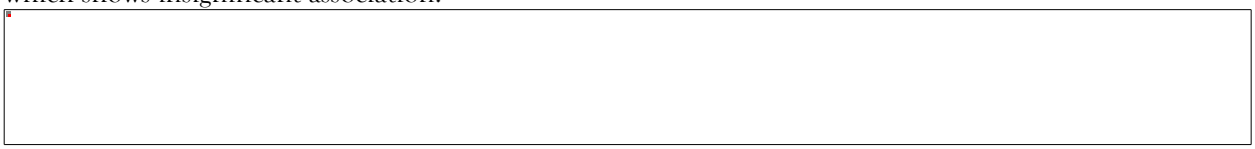

Figure 5.10: Frequency distribution of use of PPE (Worker's Gown) in different categories of HCPs

5.18: Use of PPE (Shoe covers) in different categories of HCPs

This figure showed that 35.6% (always), 46.1% (frequently) and 18.3% (sometimes) HCPs used shoe cover. P-value = 0.892 which shows insignificant association.

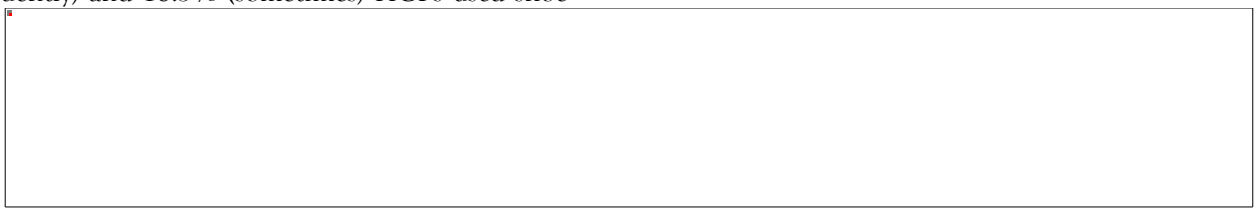

Figure 5.11: Frequency distribution of use of PPE (Shoe covers) in different categories of HCPs

5.19: use of PPE (Head Covers) in different categories of Health

This figure showed that 34.7% (always), 47.5% (frequently) and 17.8% (sometimes) HCPs covered their heads with shield. P-value = 0.603 which shows insignificant association.

Figure 5.12: Frequency distribution of use of PPE (Head Covers) in different categories of Health Care Providers

Table 5.8: Chi- square tests of Designation of HCPs and frequency of use of all required PPEs during work - Cross tabulation

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.632[a]	4	.621
Likelihood Ratio	2.684	4	.612
Linear-by-Linear Association	1.299	1	.254
N of Valid Cases	250		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.22.			

5.20: Association in designation of HCPs and frequency of use of all required PPEs during work - Cross tabulation

No significant relationship (p - 0.621) between Designation of Health Care Providers and frequency of USE all necessary PPE Table 5.8 showed.

Table 5.9: Association of Health Care Providers and their knowledge of PPEs (gloves) by Chi square test

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.494[a]	2	.287
Likelihood Ratio	2.520	2	.284
Linear-by-Linear Association	.840	1	.359
N of Valid Cases	250		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 16.12.			

5.21: Association of Health Care Providers and their knowledge of PPEs (gloves)

Table showed that HCPs have no significant relationship ((p - 0.287) with their knowledge of PPEs (gloves).

DISCUSSION

Personal Protective Equipment (PPE) comprises particular dress and accessories worn by Health Care Workers and work force associated with infectious prevention exercises.The basic purpose of wearing PPE is to prevent the transmission of microorganisms, especially in the wake of epidemics or pandemics.

Not only wearing PPE is important, but more important is its proper use. Thus, the current study was conducted to evaluate the participants' knowledge, attitudes, and practices of Health Care Workers of University of Lahore teaching hospital (a tertiary care hospital) regarding the proper use of PPE.

More than 80% of the subjects were aged between 20 to 40% and those who between 50 to 60 years were only 7%. As young HCPs are relatively more resilient to infections than the elderly, a larger proportion of the former was considered to be .As regards the gender, 42.40% were male and 57.60% were female.

Among the 250 HCPs were working in hospital, 36.0% were doctors, 31.0 % were Allied Health Professionals and 31.8% were Nurses. In a similar study carried out by Ms. Sheuli Sen and his co-workers[137]on 1060 HCPs , 38.9% were doctors, 51.9% nurses and 9.2% technicians. The percentage of doctors was almost the same, however, that of nurses was higher by about 20% and technician was less than 22%.

To see the percentage of HCPs working in different departments. In the present study, the proportion of HCPs working in Operation Theater were 42.0%,

ICU 14.9% and 41.2% Emergency .whereas those reported by Archana Lakshmi and his co-workers[138] were 862 HCPs working in OT were 49.0% which was greater than present study because mostly of HCPs working in operation theater and HCPs worked in ICU were 21.2% which was less than present study . However HCP working in OT and ICU were higher than present study.

To see the Frequency of PPE usages by Doctors, Allied Health Professionals and Nurses during work in this study 91 HCWs used PPE all the time, 114 used these frequently and 45 used it sometime .in similar study conduct by Emmanuel N. Aguwa and his co-workers 2016 [139] in which 22 percent of health care employees always use the proper personal protective equipment (PPE) while on the job which was less than the present study While 63 HCWs used frequently and 37 used sometime which was less than the present study because they had no knowledge about PPEs and not proper available of PPE at work place .

To see the Frequency of usage of gloves by HCPs in present study Gloves were used by 78% HCW .comparison with other study which was conduct by Stringer B and et al[140] in which used of gloves was 59% which was less than present study because some financial problem they were not proper use of gloves. Similarly mask were used by 98% HCWs. in similar study which was conduct by Chughtai AA and his co workers[141] in which mask used 77% that was low percentage than the present study. Because presence of advance effect like discomfort and breathing problem was the main reason to low use.

Goggles is the protective equipment that protect our eyes from dust, infection and spills during surgery. To see the frequency of uses of goggles in present study there were used of goggles by 22.4%.in other study that conduct by Tukur J and his teammates [142] in which 54.8% used Google because they had knowledge about how to protect their eyes from blood drop during practices that way practices of goggles wearing during work is greater than the present study.

Shoe cover was used to protect our foot from infection and spills that present on floor, to see the uses of shoes cover in present study 74.9% HCWs used shoe cover during work but in other study in which 27.3% HCWs used shoe cover which are less than present study because unavailability of shoe cover and unawareness of uses of it. To see the frequency of uses of Gowns in this study gown were used by 63.1% HCWs.in comparison with other study in which only 44.3% HCWs use gown which was less than the present study because they was inappropriate use of gown.[137]

A head cover is used to cover your hair and prevent loose hairs from slipping into the procedure site, which could lead to infection. In the current study, 67.5 percent of participants used hair covers correctly. but in comparison study used of head cover was less than present study because they were less practices to use of head cover during work.[143]

To see the Proper practices of PPE usage among health care workers during work especially hair cover which are most import part of protection because it prevent falling of loss hair at work place and safe your hair from infection . In the this study 92.5% HCPs completely covered the Hair during practices but In other similar study in which 91.6% HCPs should completely cover the hair during practices and the percentage of completely cover the hair was lower than the present study because they were adequate knowledge on infection control practices.[138] Mostly HCPs use gown during practices to prevent herself from infection and to prevent clothes from getting soiled. When they wear gown the back of gown should be tie, to see this practices in this study HCPs gown tie at the back during practices was greater than the other study because HCPs had knowledge about PPEs practices. .

To avoid cross infection, gloves should be changed between procedures on the same patient and dispose after practice to prevent the contamination and wear the correct size glove to prevent herself from discomfort and hand itching from small and loss size gloves. In present study health care workers changed Gloves between procedures on same patient and removed the gloves before leaving patient bedside and use correct size gloves. Ms. Sheuli Sen. and et al 2020 conduct study[137] in which change of the gloves between procedure on same patient result finding was almost same to present study and removed the gloves before leaving patient bedside was also same but use of Correct size gloves during work is less than the present study because non availability of correct size of gloves.

Masks protect against droplet infection and airborne infection, but they should be worn with the upper part of the mask tucked under the glasses to prevent infection and fogging during practices. HCWs wore the upper end of the mask under their glasses in this study .The result finding of the present study was higher than the other similar study because HCWs

had not knowledge about this and they were not take any training.[144]

Some inhibiting factor that inhibit the HCWs to use the PPEs during work place such as low risk of infection, forgetfulness and feeling of un-comfortableness to see this attitude of the HCWs in present study 5.5% HCWs stated low risk of infection, forgetfulness by 19.6%. Disturbance in working by 9.8% and feeling of un-comfortableness by 20% were the main inhibiting factors for wearing PPE during work. Dr. Archana Lakshmi P. A.,and his co-worker[138] conduct a study in which The commonest inhibiting factor to use of PPEs even when available was awareness of low risk to threat and Disturb working result finding was almost the same to present study. In another study commonest inhibiting factors to use of PPEs even when available are perception of low risk to hazard, forgetfulness and disturbance with work activity is less than the present study because continued education on use of PPEs and attachment of punishment to non-compliance were commonest recommendations by the respondents on improving use of PPEs .[145]

In terms of contamination control, having policies in place and having a strong understanding of personal protective equipment (PPEs) is sufficient. It's critical to plan ahead of time how you'll use them. Certainly, perceptions during the latest COVID 19 up brought to light impoverished people's preparation and use of PPEs, resulting in health workers becoming contaminated. In this syudy health care workers had 100 % knowledge about PPEs and 99% health care workers take a training how to use PPEs .In other study conduct by Hakim SA and his coworker 2016 [1] in which received training on PPEs was less than the present study because they had no time for training and had no knowledge about PPEs.[146]

7.1: CONCLUSION

In this study health care providers working in university of lahore teaching hospital had knowledge about the importance of using personal protective equipment and majority was practicing these preventive measures. Health care providers use all necessary PPEs such as (gloves, gown, mask, face shield, head cover and shoe cover) while working. Most of the health care providers always use all necessary PPEs, Majority of the health care providers frequently used all necessary PPEs, Whereas, very few health care providers sometimes use all necessary. Although Health care providers was trained as per policy of health department but few health Care providers had been reluctant to follow the protocol due to different lame excuse like uneasiness in wearing, forgetfulness, disturbed working and unavailability.

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