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KNOWLEDGE AND ATTITUDE REGARDING USE OF PERSONAL PROTECTIVE EQUIPMENT AMONG NURSES IN PRIVATE HOSPITAL LAHORE

BY

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I

DEDICATION

The thesis is dedicated to **Almighty ALLAH,** the most merciful and the most beneficent, who gave me strength to fulfill my goal.

Then to my beloved **Prophet Muhammad S.A.W**.

My **parents, friends** who gave me full support and encourage my education.

Dr. Sajid Hameed (Supervisor), Dr. Asif. Malik (Co-Supervisor)

Who provide me proper guidelines and were always there whenever I need.

Roobina Zahra

DECLARATION

The work reported in this thesis was carried out by me under the supervision of _____ Department of _____GC University, Faisalabad, Pakistan.

I hereby declare that the title of thesis _____

And contents of thesis are the product of my own work and no part copied from any published source (except the references, standard mathematical or genetic models /equations /formulas/protocols etc). I further declare that this work has not been submitted for award of any other degree /diploma. The University may take action if the information provided is found inaccurate at any stage.

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Roobina Zahra

LIST OF ABBREVIATIONS

S #	Abbreviation	Full Form
1	PPE	Personal Protective Equipment
2	SP	Standard Precautions
3	HAI	Hospital Acquired Infections

ABSTRACT

Background: Personal protective equipment (PPE) is protective equipment intended to protect the health of employees by reducing exposure to a biological agent. PPE use is a key method to avoid the spread of disease in health-care environments where nurses come into close contact with infected patients. **Objective:** The objective of study was to evaluate knowledge and attitude of nurses regarding PPE.

Methodology: Study design was descriptive cross sectional. Convenient sampling technique was used. Sample size was 110. Study instrument was adopted from previous research studies. The questionnaire was divided into three sections. Section I contain demographic characteristics, section II contains 13 questions on knowledge with response 'Yes' and 'No' and section III contain 5 questions on attitude with response 'strongly agree, agree, don't know, disagree, strongly disagree'. Data were analyzed on SPSS version 25.

Results: 57.3% participants were male and 42.7% participants were female in the study. 70.9% were agreed with that wearing gloves reduce the need of hand wash. 52.7% respondents were not agreed with that double glove decrease the chance of cross infection. 41.8% respondents were agreed with PPE is compulsory for employees. There was association between participants qualification level and knowledge level. Chi-Square = 16.7 and p value is .002 which is less than normally value highly significant).

Conclusion: In this study, only 13% participants had good knowledge level, 27% had moderate knowledge level and majority 60% had poor knowledge level. Attitude level

towards use of PPE was negative as < 50. Educational programs should be conducted for employees to enhance their knowledge.

Key Words: Personal Protective Equipment, Knowledge, Attitude, Nurses

CHAPTER-1

1.1 INTRODUCTION

Personal protective equipment (PPE) is protective equipment intended to protect the health of employees by reducing exposure to a biological agent. PPE use is a key method to avoid the spread of disease in health-care environments where nurses come into close contact with infected patients. Various forms of PPE which include gloves, gown, mask, goggles and hoods are used to avoid the infection of the skin and mucous membranes of the wearer's skin and mucous membranes and to prevent the inhalation of infected particles by the breather. PPE is used to protect the nurses from bacterial, viral, or other hazards during this COVID-19 pandemic, and they should be made aware of proper usage of this equipment (Garg, Grewal, Mahajan, Kumari, & Mahajan, 2020).

Standard precautions (SP) require the nurses to predict exposures and choose sufficient PPE, while transmission-based precautions include a particular PPE collection for the use of nurses to treat patients with an infectious disease or disease syndrome identified as airborne, touch, or droplet route transmission. Pathogens can be passed from the PPE to the healthcare workers' bodies Nurses during the doffing of personal protective equipment (PPE), placing nurses and patients at risk of exposure and infection. It is a primary strategy to prevent the transmission of diseases in healthcare settings (Siegel, et al., 2007)

To prevent disease transmission in healthcare environments, PPE must be used routinely and appropriately by nurses to prevent exposure and the transport of pathogens to their bodies. The contribution of this work is the definition of doffing practices in the rooms of patients with viral respiratory infections following routine patient care among different worker types and labeled for transmission-based precautions (Phan, et al., 2019).

The risk of exposure to potentially contaminated blood and body fluids that can lead to severe or even fatal infections is high for nurses and patients. In particular, nurses are repeatedly exposed to different infections during the course of their nursing activities. This can be reduced by routine measures such as hand hygiene, the use of personal protective equipment (e.g., gloves, gowns, masks), safe injection procedures, the safe handling in the patient area of potentially infected equipment or surfaces, and the etiquette of respiratory hygiene/cough to reduce the risk of contracting occupational infection in the healthcare environment from both documented and unexpected sources (Abukhelaif, 2019).

An increased number of hospital-acquired infections (HAI), which is a major concern of health professionals, could be faced by any hospital. According to WHO estimates, a substantial number of hospital-acquired infections (7.1 million cases) occur in the world annually. The prevalence of HAI is thought to be in the 5% of individuals who get hospital infection. Nearly 1 lac individuals die from hospital acquired infections and it imposes a massive financial strain on society's shoulder (about 32 million US dollars). In developing countries, the incidence of hospital infection is found to be very

high (10.1 percent), relative to the developed world (7.6 percent), which means that developing countries need more care than in developing countries (Yasmin, Hussain, Afzal, Praveen, & Gillani, 2017).

HAI is the infection which occurs in the hospital within 48 hours of admission or 3 days of discharge or an operation of 30 days. The primary cause of infection is the use of non-sterilized equipment, untrained nurses or lack of understanding among healthcare personnel. Hand washing can prevent the transmission of infection from one patient to the next. Gloves, gown, and masks have a very important role to play in the prevention of these infections that are mostly not properly used. Infectious diseases are one of Pakistan's big problems and they are the root cause of morbidity and premature death. The data on this topic is very scarce. Pakistan is not ready the emergence of new infectious diseases (Zaidi, Javed, Naz, & Mumtaz, 2016).

Hospital nurses are often presented by a number of infections, both contagious and non-infectious. Nurses should also have ample expertise and mindset about the use of PPE when delivering treatment to patients to ensure that they are treated with the disease. Positive behavior with the use of PPE will improve the nurse's professionalism before patients (Virgowaty, Setyaningrum, & Rosadi, 2020).

In the form of an extreme threat to communicable diseases, a high percentage of nurses and doctors are at increased risk of the most common danger. Communicable conditions make health workers vulnerable to extreme repercussions. Hospital-acquired infections arise during the hospital care period due to many bacteria, viruses and fungi.

Such contamination is debilitating and life-threatening at certain times. A series of some specific protocols is applied to protect health care staff and patients from possible illnesses caused by contact with infectious body substances such as tainted blood and other tainted body fluids such as feces and urine, etc. (Yasmin, Hussain, Afzal, Praveen, & Gillani, 2017).

In the sense of positive PPE, the habit of using PPE evolves negative behaviors and bad habits don't change quickly. Personal protective equipment can only be used in infrastructure and administrative matters as a last step to monitor the risks, controls are inadequate. Protective Personal Appliances the key defense should not be relied on but should be used in combination with to provide high standards of safety with engineering control and work practices. To ensure that the right form of PPE is selected, carefully and correctly, Different risks in the workplace should be considered. It is easier to decide which form of PPE is sufficient to prevent staff nurses from hazards when they performing their duties (Magoro, 2012).

When attempting to protect themselves, patients, colleagues and the general public from the spread of infection, a thorough understanding of infection prevention and control is important for nurses. A comprehensive understanding of infection prevention and control is critical for nurses when attempting to protect themselves, patients, colleagues and the general public from the spread of infection. Its usage includes efficient evaluation, an appreciation of the suitability of different types of PPE in different clinical situations, and adequate implementation. Understanding the function of the PPE would

enable nurses to use it properly and minimize unnecessary costs while ensuring that the nurse-patient relationship remains essential to treatment (Brown, 2019).

Infectious agent transmission requires three agents within a health care setting; a reservoir, a vulnerable host, and a mode of transmission. Health care staff and visitors for patients are vulnerable to being hosted in the hospital climate. Infection is created by the complex interrelation between a potential host and an infectious agent. The mode of transmission may differ by type of organism, as more than one route may be transmitted by certain types of organism. Infection is created by the complex interaction between a potential host and an infectious agent. Compliance with standard precautions on the part of health care staff has been recognized as an effective and effective way of preventing and regulating Infections correlated with health care for patients and nurses (Ashafsheh, Ayed, Eqtait & Harazneh, 2015).

SP which are a series of recommendations intended to avoid or reduce exposure to infectious agents by hospital personnel, patients and their guests, are the most effective and simplest way to prevent infection in a hospital. Normal precautions assume that all patients' blood and body substances are possible sources of infection, irrespective of diagnosis or suspected infectious status. Normal precautionary components include hand hygiene, protection of injections, use of personal protective equipment and cleanliness of the workplace, as well as waste control, respiratory hygiene and cough etiquette (Ogoina, et al., 2015).

There is a need to protect both patients and the staff nurses from this risk. By implementing protective barriers, such as wearing surgical gloves, this risk can be reduced. In contrast to one pair, wearing two pairs of surgical gloves, triple gloves, glove liners or cloth outer gloves is considered to provide an extra barrier and further reduce the risk of contamination. Direct-contact transmitted nosocomial infections may be able to adapting common protocols for precautions will avoid them. The best way to avoid interaction with secretions and the transmission of pathogens is to make effective use of PPE. It is necessary to determine the degree of enforcement by the various health care workers who make direct communication with the use of PPE by the different nurses with patients (Tanner, & Parkinson, 2016).

1.2 PROBLEM STATEMENT

Infectious diseases are one of Pakistan's big issues and are the root cause of morbidity and premature death. The information on this subject is very limited. Pakistan is not ready for the emergence of new infectious diseases. The equipment used and the careful handling of invasive procedures will help to overcome these life-threatening infections. Awareness of the use of PPEs and training can lead to the reduction of HAI.

1.3 PURPOSE OF STUDY

The aim of this research study was to determine the knowledge and attitude level of nurses towards PPE.

1.4 OBJECTIVE

The objective of study was to evaluate the knowledge and attitude of nurses regarding PPE.

1.5 RESEARCH QUESTIONS

- What is the nurses' knowledge level about PPE?
- What is attitude of nurses regarding PPE?

CHAPTER-2

LITERATURE REVIEW

2.1 Introduction

There is a need to review existing literature to understand how other researchers have the issue was investigated and their studies concluded. A literature review aims to contribute to a clearer understanding of the nature and meaning of the identified problem. Also, it reveals the journey of research and how the current project is linked to previous research. The opinions of the authors and the findings of other researches are presented in this chapter.

2.2 Safety Acts and Standard Precautions

Training of nurses is an important component of the establishment and preservation of healthy working conditions and habits. According to the Occupational, all nurses must be advised about the risks in their working environment and the necessary procedures followed by the all nurses to reduce and mitigate the risks. Moreover, every individual employee should know the wide variety of dangerous materials that can cause occupational problems long-term illnesses and potential physical and psychological damage or injuries. The general PPE criteria require employers to carry out a hazard evaluation of their workplaces to determine the dangers that involve the use of PPE, are present. The use of PPE is always critical, but it is typically the last source of PPE.

Security where a safe work environment is not adequately mitigated by technical controls, work practices and administrative controls. PPE is intended to protect nurses from serious injury or illnesses in the workplace arising from interaction with chemical, radiological, physical, electrical, mechanical or other hazards in the workplace (Magoro, 2012).

2.3 Knowledge about PPE

Awareness, attitude and practice of the principles are linked to each other and separation is not easy. If a person has awareness of something then a positive or a negative attitude towards that thing will develop. The result of appropriately acquired knowledge is usually good practice or acceptable practice. The primary objective of the Occupational Health and Safety Program is to prevent accidents and illness, using knowledge as the main tool. In a hazardous working environment, only accurate knowledge of the risks and adequate training in handling them can allow the nurses to adopt appropriate behavior. A successful accident prevention programed relies on employer leadership and the employees' safe work habits and practices (Arinze-Onyia, et al., 2108).

A study was conducted by Morioka in 2020 about use of PPE among nurses in Japanese tertiary Hospital. The aim of study was to examine the relative effect of particular factors on compliance with PPE. The sample size was 735 nurses in 28 tertiary care hospital in Japan. This survey systematically identified factors associated with nursing that led to compliance with PPE. We recommend educating nurses as a realistic

approach to ensuring good results by having sufficient awareness of effective PPE usage and exchanging experiences of outbreaks or ward shutdowns (Morioka, et al., 2020).

The design of the institutional based cross-sectional analysis was carried out on 200 selected nurses randomly by Garish Degavi in August 2019. The main aim of this study was to know about knowledge of nurses regarding personal protective equipment. Conclusion of this study was that majority of the respondents had good knowledge regarding personal protective equipment (Kajagar, & Degavi, 2020).

Our study results indicate that professional differences in knowledge, attitude and practice of SP among nurses are largely affected by the length of professional experience and not necessarily by professional community professional experience. In the two tertiary hospitals in South-South and North-Central Nigeria, overall knowledge and attitude towards standard precautions for infection control among nurses was strong. However, poor knowledge of injection safety and poor practice of standard infection control precautions, particularly among less experienced nurses, such as student nurses, have been reported. The majority of health workers complained of insufficient facilities to take routine precautions, such as the lack of a regular supply of running water and the lack of a regular supply of personal protective equipment (Ogoina, et al., 2015).

2.4 Attitude about PPE

A study conducted to compare the attitude of nurses regarding standard precautions concluded that Ethiopian and Chinese nurses both displayed favorable

attitudes towards SPs, but better awareness and practices were recorded by Chinese nurses. In order to strengthen infection control in Ethiopia, the organization should enhance structured and on-the-job training, introduce targeted infection prevention strategies and provide appropriate medical supplies (Zhu, Kahsay, & Gui, 2019).

A cross sectional study conducted by Jeong Sill in 2018 that concluded Improving Zika virus infection-control skills will help strengthen the behaviors associated with nurses, which in turn may encourage successful practice. Given the characteristics of nursing students, an efficient and viable education programed related to the prevention of infection transmission needs to be developed and implemented. The present study showed that the level of awareness of nursing students with regard to standard precautions and their perception of risk was poor. They had a reasonably clear understanding about SP (Choi, & Kim, 2018).

2.5 Practices of PPE

There were common deviations from the CDC's prescribed PPE doffing procedure, which could raise the risk of self-contamination on the clothing and skin of health care workers after treating patients with acute respiratory virus infections. Doffing procedures included errors with respect to the doffing series, doffing procedure, and/or use of acceptable PPE in more than 90 percent of the findings. Doffing the gown from the front, removing the mask's eye shield, and contacting potentially contaminated surfaces and PPE during doffing were common mistakes. A new approach to education

and training is required, given the difficulty of PPE doffing and defects in the doffing practices of health care workers (Phan, et al., 2019).

A cross sectional study conducted that concluded a large proportion of healthcare staff was not aware of infection prevention, the latest study found. The overall standard of healthcare workers' healthy infection prevention practice is perceived to be very low. Providing regular training on infection prevention on the job is necessary, as well as ensuring the availability of guidance on infection prevention in the work department should be successful and significant measures to enhance the practice and awareness of infection prevention for healthcare workers. In order to confirm the self-reported practice of healthcare workers and to evaluate real procedures, as well as the actual prevalence of hospital acquired infections as a result of inadequate practice of infection prevention, future studies should suggest stronger observational study designs (Geberemariyam, Donka, & Wordofa, 2018).

This descriptive, cross-sectional research was carried out in Saudi Arabia at six government universities. The results provide useful insights and recommendations for improving the practice of SPs among future nurses, which may contribute to a reduction in the exposure of infections and their transmission rates in clinical settings among future nurses (Alshammari, et al., 2018).

A study conducted that showed the adequate use of PPE was very low. The use of PPE is important in protecting the nurses and infection transmission. Steps should be taken to ensure proper accessibility and strict protocols for infection prevention should

be followed in order to enhance them. The study revealed improper usage and inadequate knowledge of infection management procedures, suggesting the need for periodic re-training (Lakshmi, Meriton, & Christina, 2016).

On the basis of the results of this study, concluded that nurses in the current study have a high degree of infection prevention practice. Nevertheless, despite having knowledge of infection control, their general knowledge did not reach the right degree (Fashafsheh, Ayed, Eqtait, & Harazneh, 2015).

2.6 Aseptic Technique

To prevent disease transmission in healthcare settings, PPE must be used consistently and correctly by HCWs to prevent exposure and the transport of pathogens to their bodies. The infection of two nurses with Ebola Virus Disease (EVD) in Dallas, Texas has been attributed to PPE failure or incorrect PPE use. Simulation studies in which HCW PEP is infected with pathogen surrogates have shown that excessive PPE doffing practises can result in contamination of HCW skin and clothing. In this research, we characterised the use of PPE and PPE doffing procedures by HCWs in the intensive care hospital for patients with viral respiratory infections. Our method was direct observation conducted within the patient rooms. Previous study has demonstrated that HCW's compliance with PPE usage is relatively poor and that doffing procedures are contradictory, but most of that work required findings outside of patient rooms or in the form of simulation. The contribution of this work is a summary of regular patient-care

doffing activities by various categories of staff in the rooms of patients with viral respiratory infections and labelled for transmission-based precautions (Phan, et al., 2019).

A recent study in Pakistan on the assessment of Knowledge on Infection Control was received by 89% of nurses, but their source of information was not practical in-service education programs. Subsequently, the amount of information and practices shown by the information and practice score below 75% was inadmissible. The results of the present analysis showed a low level of information and experience among medical personnel. Health care settings are also expected to draw up propelled training courses and to create a unit with explicit clinical rules and conventions. Another survey conducted in 2018 to determine nurses' knowledge of prevention of infection among burn patients and the findings found that a majority of 69.8% of nurses had passed a knowledge score on nosocomial infection (Buksh, 2019).

A report conducted in 2019 on gloves as a potent barrier to contamination prevention and the findings showed that there was clear evidence of a positive correlation between experience with gloves as a viable disease control boundary among nurses. Preventing burn contamination involves determining the injury to any alteration of dressing due to changes in the subject, smell or calculation of warped seeping, with immediate warning from the doctor if any cracking occurs. Exacting aseptic technique should be used for taking care of exposed injury and dressing supplies just as the recurrence of dressing should be based on the determination of the state of injury. In the

case that the injury has necrotic material present, a debriding dressing should be chosen while a protective dressing is better fit for perfect, remedial wounds (Norbury, 2016).

The aggregate volume of waste produced by human services is around 85 per cent of general, non-hazardous waste. The remaining 15% is known to be hazardous material that may be addictive, hazardous or radioactive. Steps to ensure the healthy and environmentally sustainable administration of social insurance squanders can protect the unfriendly well-being and natural consequences of such waste, including the accidental arrival of substances or organic risks; including safe drug microorganism, successively maintaining the strength of patients, well-being staff and the general public (Tarvadi, 2018).

Environmental hygiene is a common Precautions that can be extended to all patients in all health care facilities. It is critical that ecological cleaning programs be carried out within the framework of projects at the office level. Where conceivable during the planning and training of workers, think, for example, the creation of partnerships and linkages between ecological cleaning and hand-cleaning activities to discourage the natural spread of emergency clinic disease (Ling, 2015).

An analysis in Iran found that the practice of standard insulation precautions among nurses at the Qazvin University of Medical Sciences was weak. Getting awareness and a good outlook of its own does not affect practice. In addition, the need for uniform insulation in the prevention of disease in patients for all periods of education must be stressed and facilities strengthened (Pittet, 2008).

A further research in Pakistan identified that stocks of sterile surgical instruments have also been found to be ignored. Unclean instruments cannot be sterilized or disinfected, raising the possibility of surgical site infections. Objects such as endoscopes and ultrasonic transducers can first be washed manually and then sterilized and reprocessed in compliance with the manufacturer's instructions. They should be kept in a clean dry environment. In tertiary hospitals in northern Pakistan, autoclaves have not been adequately controlled. There was still no adequate disinfection of devices used regularly, such as endoscopes. Injection equipment is commonly reused with sterilization (Damte, 2007).

An institution-based cross-sectional research was performed by Teshager in 423 nurses in 2 hospitals (Gondar University Referral Hospital and Debye Markos Referral Hospital) of the Ethiopian Federal State, Ethiopia. The findings of this analysis were data and follow-up of nurses on the bar of surgical website contamination everywhere the data and follow-up of nurses were found to be poor during this study. The results of this study were data and follow-up of nurses on the surgical site infection bar, elsewhere the data and follow-up of nurses were found to be bad of UN nurses (Teshager, Engeda, & Worku, 2015).

CHAPTER-3

MATERIALS AND METHODS

This chapter provides a clear description about study design, study setting where study conducted, study population and the sampling technique. This chapter also provides description about data collection instrument, procedures and data analysis.

3.1 STUDY DESIGN

Study design was descriptive cross sectional.

3.2 STUDY SETTING

Study setting was Bahria international Hospital, Lahore and University of Lahore Teaching Hospital, Lahore.

3.3 STUDY PEROID

Study was conducted from January 2020 to June 2020.

3.4 STUDY POPULATION

Study population was nurses.

3.5 SAMPLE SIZE

Sample size calculated by Slovin's formula;

$n= N/(1+N(e)^2)$

Where N = population

e = margin of error

n = sample

N=160, e= 0.05, n= 114

Study sample size was 110.

3.6 SAMPLING TECHNIQUE

Convenient sampling technique was used in this research study.

3.7 SAMPLING SELECTION CRITERIA

3.7.1 Inclusion Criteria

- Nurses both male and female
- Nurses qualification General Nursing, Post RN and BSN.
- Nurses age less than 20years, 20-25 years or more than 25 years.
- Nurses who gave informed consent.

3.7.2 Exclusion Criteria

- Nursing administrators, Doctors and paramedical staff
- Nurses who declined to participate in study
- Nurses who were not present at the time of data collection.

3.8 STUDY INSTRUMENT

Study instrument was adopted from previous research studies (Magoro, 2012) (Muhammadzadeh, M., et al., 2013). The questionnaire was divided into three sections. Section I contain demographic characteristics, section II contains 13 questions on knowledge with response 'Yes' and 'No' and section III contain 5 questions on attitude with response 'Strongly agree, Agree, Don't know, Disagree, Strongly disagree'. Total Score of knowledge was 100%. Classification of total score was good (71-100%), moderate (51-70%) and poor (0-50%) (Yusof, Chia, & Hasni, 2014). Total Score of attitudes was 100%. Classification of attitude was positive attitude (50-100%) and negative attitude <50% (Magoro, 2012).

3.9 RELIABILTY AND VALIDITY OF STUDY TOOL

Study tool validated from head of department and supervisor of the study. Its reliability checked through Cronbach Alpha which was 0.8. A pilot study was done on 10 participants to assess the understanding of questionnaire. The results were included because participants were easily understanding the questions.

3.10 DATA COLLECTION PROCEDURE

Questionnaire were distributed to nurses who were present at the time of data collection. It took 10-15 minutes to fill.

3.11 VARIABLES OF STUDY

3.11.1 Dependent Variables

Knowledge and Attitude of nurses

3.11.2 Independent Variables

Demographic characteristics (Gender, Age and qualification)

3.12 DATA ANALYSIS

Data were analyzed through Social Sciences Statistical Package (IBM SPSS Statistics) version 25. Data were analyzed in the form of frequencies, percentage. Demographic characteristics were presented in tables and pie charts. Other variables were

presented in form of tables and bar charts. Chi-Square test was used to determine the association between variables. Results showed significant if *p* value < .005.

3.13 CONCEPTUAL DEFINATIONS

3.13.1 Personal Protective Equipment

"PPE" is a device used to reduce exposure to dangers that causes significant harm and disease to the workplace (Magoro, 2012).

3.13.2 Knowledge

The facts, skills and abilities that you learn from education or experience; the state of awareness of a particular fact or circumstance (Huynh, Nguyen, Vo, & Pham, 2020).

3.13.3 Attitude

Attitude is more or less a permanent state of mind-organization, which is a highly emotional feeling that reflects a person's mental state toward a value such as fear of something (Huynh, Nguyen, Vo, & Pham, 2020).

3.14 OPERATIONAL DEFINATION

3.14.1 Personal Protective Equipment

PPE’s are materials used to protect from cross infection.

3.14.2 Knowledge

It is information or awareness about something that used in every day.

3.14.3 Attitude

It is persons behave to something based on perception.

3.15 ETHICAL CONSIDERATION

Approval letters were obtained from concerned department and study setting. Written informed consent was taken from participants. Respect and privacy of every participant were maintained. Data confidentiality ensured to participants. Data were kept in lock. This study was not exposed to any harm. Participants remained anonymous throughout the study. Participant could withdraw from study at any time.

Chapter. IV Results

Section 1: Demographic Data

Table.1 Gender		
	Frequency	**Percentage**
Male	63	57.3%
Female	47	42.7%
Total	110	100%

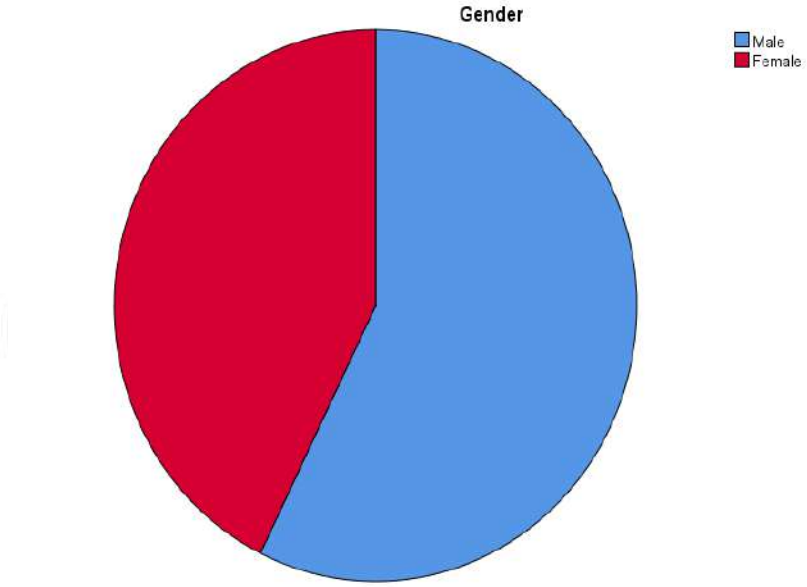

Fig.01 Gender

Table.01 presents that 57.3% participants were male and 42.7% participants were female in the study.

Table.2 Marital Status		
	Frequency	**Percentage**
Married	71	64.5%
Single	39	35.5%
Total	110	100%

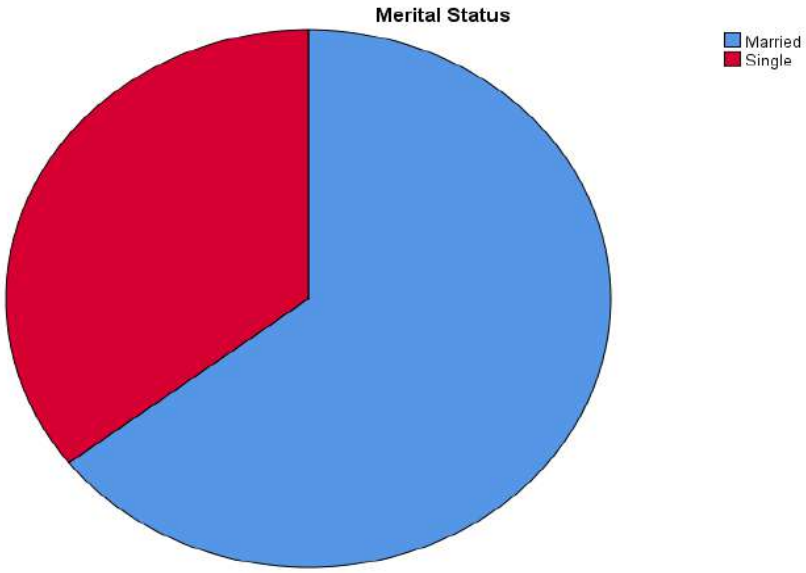

Fig.2 Marital Status

Table.02 shows that 64.5% participants were married and 35.5% were single.

Table.3 Age		
	Frequency	**Percentage**
Less than 20 years	0	0
20-25 years	63	57.3%
More than 25 years	47	42.7%
Total	110	100 %

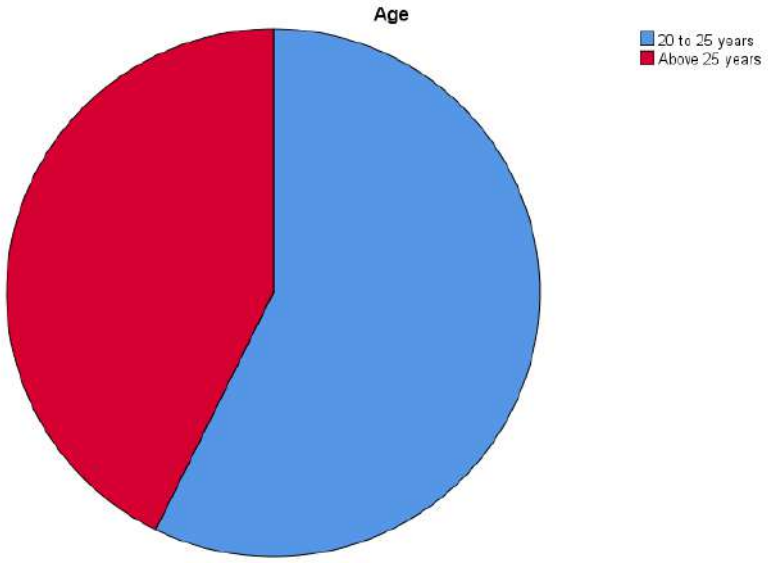

Fig.03 Age

Table.03 reveals that 57.3% respondents fall in age group of 20-25 years and 42.7% were more than 25 years old.

Table. 4 Qualification		
	Frequency	**Percentage**
General Nursing	15	13.6%
Post RN	57	51.8%
BSN	38	34.5%
Total	110	100%

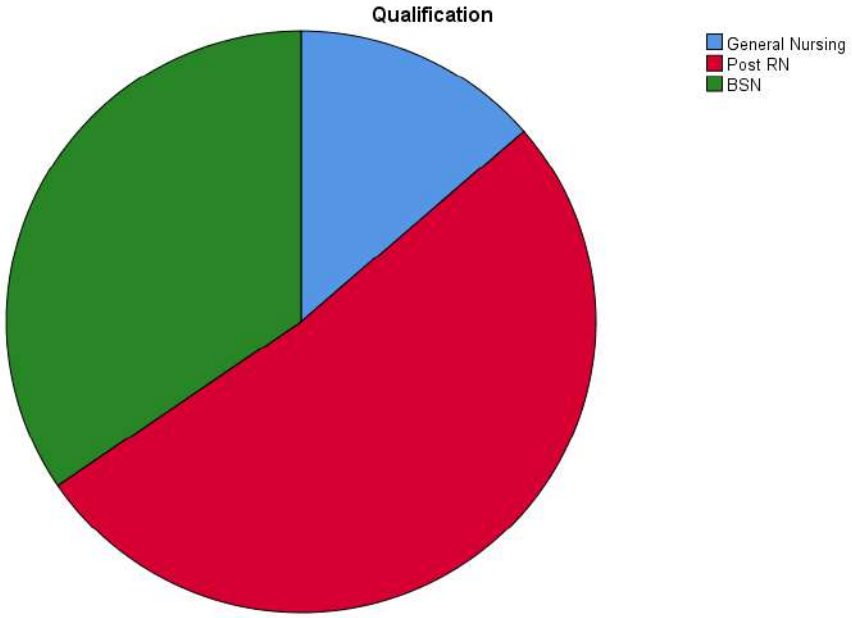

Fig. 4 Qualification

Table.04 shows that 13.6% participants' qualification were general nursing, 51.8% were post RN and 34.5% were BSN.

Section. 02 Knowledge regarding PPE

Table. 5 Wearing gloves eliminates the need of hand Wash		
	Frequency	**Percentage**
Yes	78	70.9 %
No	32	29.1 %
Total	110	100 %

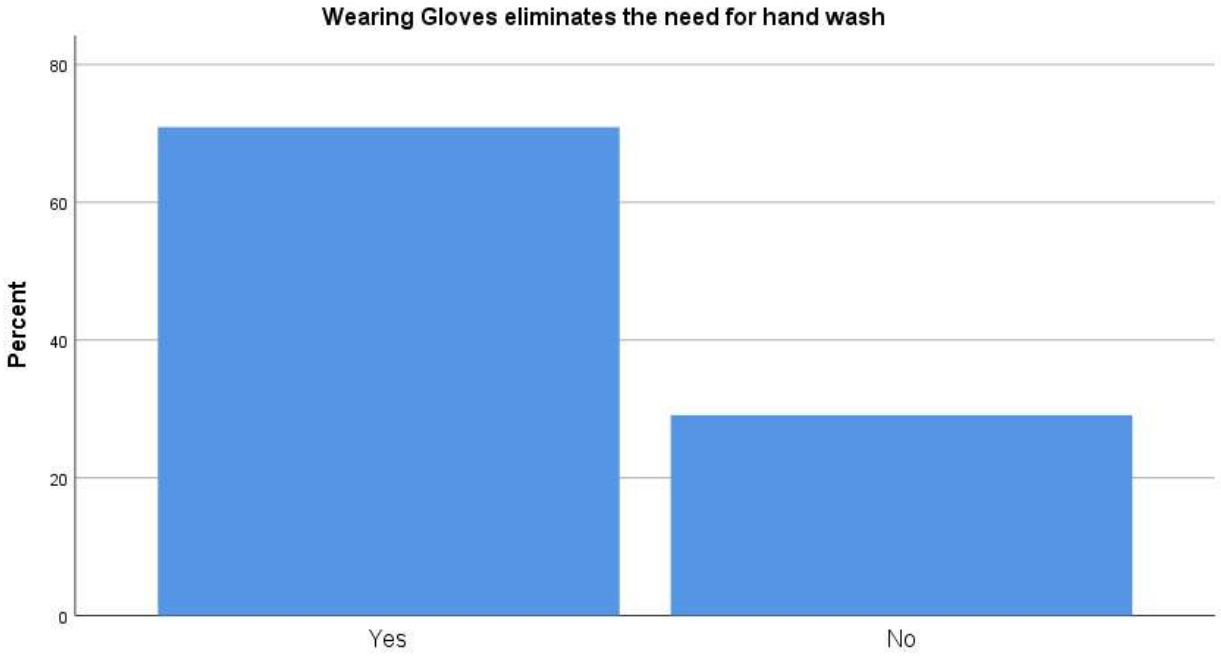

Fig.05 Wearing gloves eliminates the need of hand Wash

Table.05 presents that majority of participants (70.9%) were agreed with that wearing gloves reduce the need of hand wash and remaining were disagree.

Table. 6 Hand washing after removal of gloves is essential		
	Frequency	**Percentage**
Yes	71	64.5 %
No	39	35.5 %
Total	110	100 %

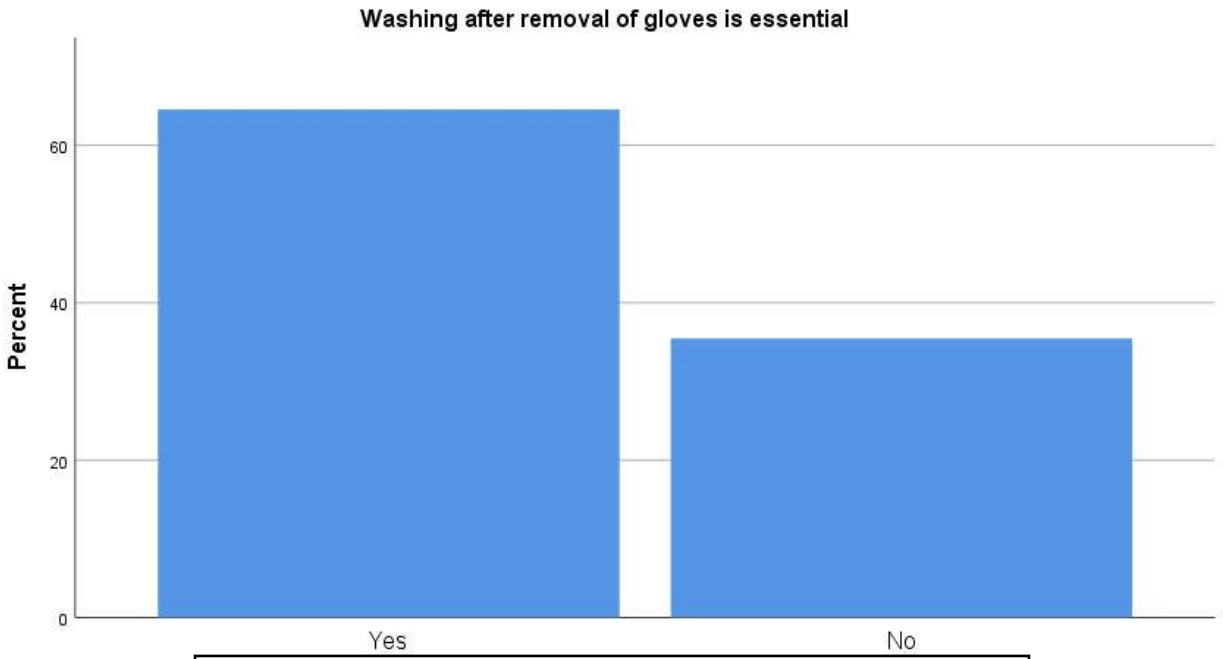

Fig.06 Hand washing after removal of gloves is essential

Table.06 presents that 64.5% participants response were 'Yes' on hand washing is essential after removing gloves and 35.5% response were 'No'.

Table. 7 Can double gloves reduce the chance of cross infection		
	Frequency	**Percentage**
Yes	52	47.3 %
No	58	52.7 %
Total	110	100 %

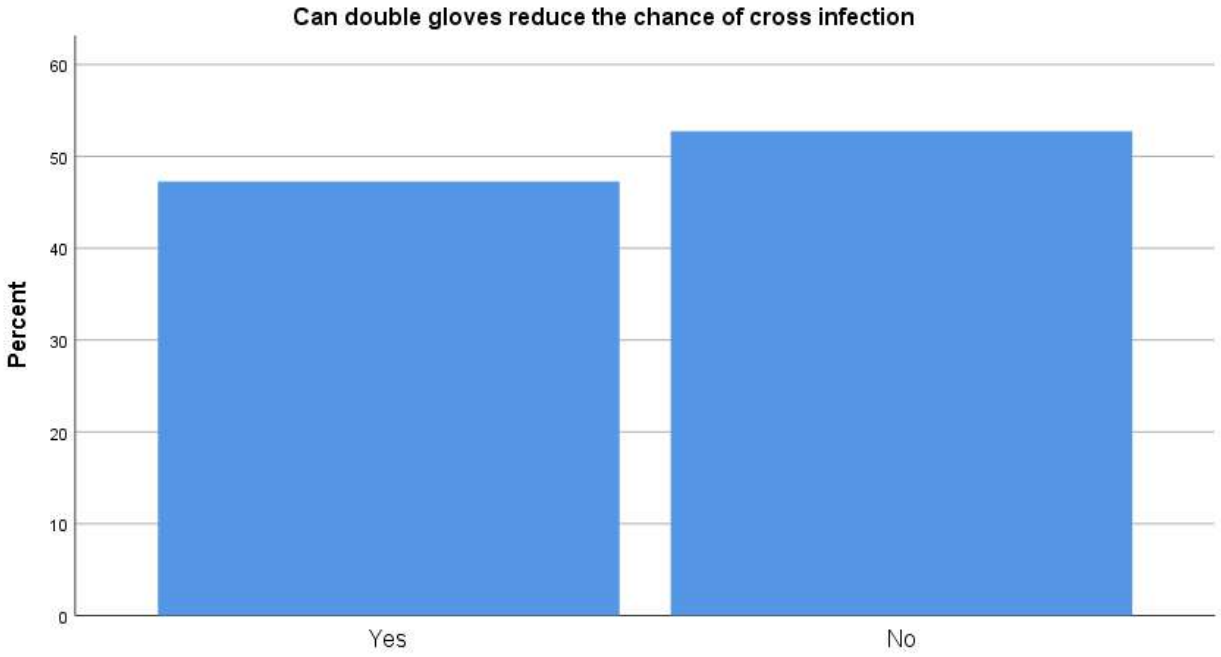

Fig. 7 Can double gloves reduce the chance of cross infection

Table.07 shows that 52.7% respondents were not agree with that double glove decrease the chance of cross infection.

Table. 8 Gloves should be worn when touching the mucous membrane		
	Frequency	**Percentage**
Yes	55	50 %
No	55	50 %
Total	110	100 %

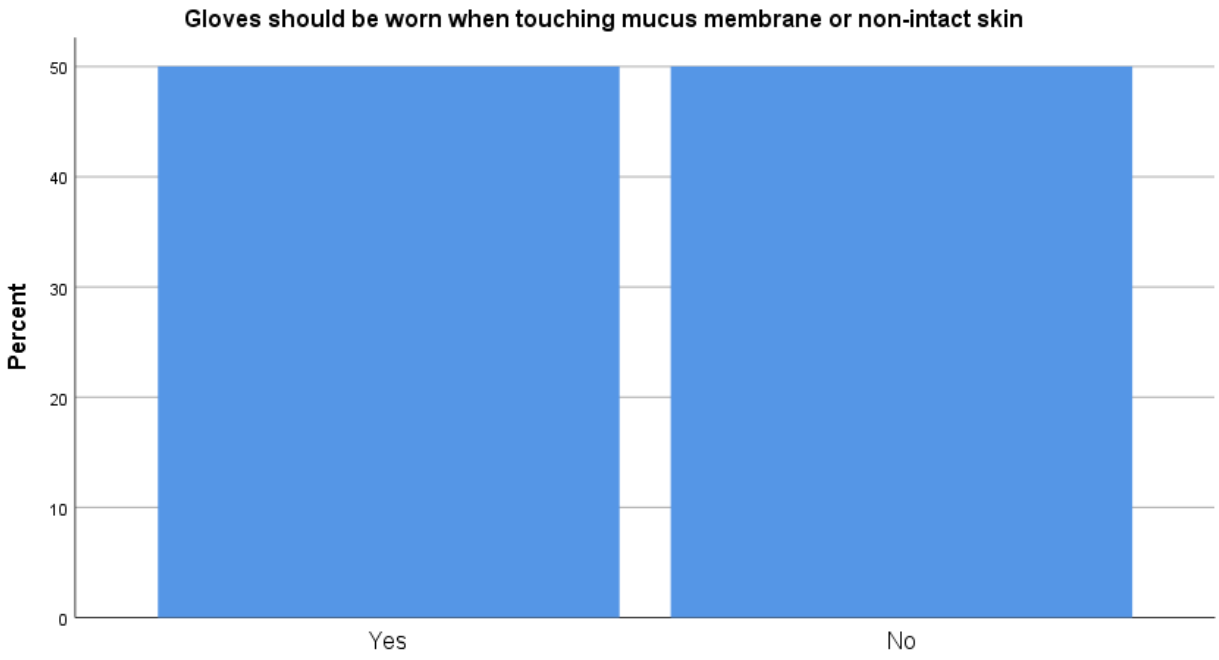

Fig. 8 Gloves should be worn when touching the mucous membrane

Table .08 reveals that half of participants 50% response 'Yes' on gloves should be worn when touching the skin and half responding 'No'.

Table. 9 Goggles should be worn to protect eyes		
	Frequency	**Percentage**
Yes	61	55.5 %
No	49	44.5 %
Total	110	100 %

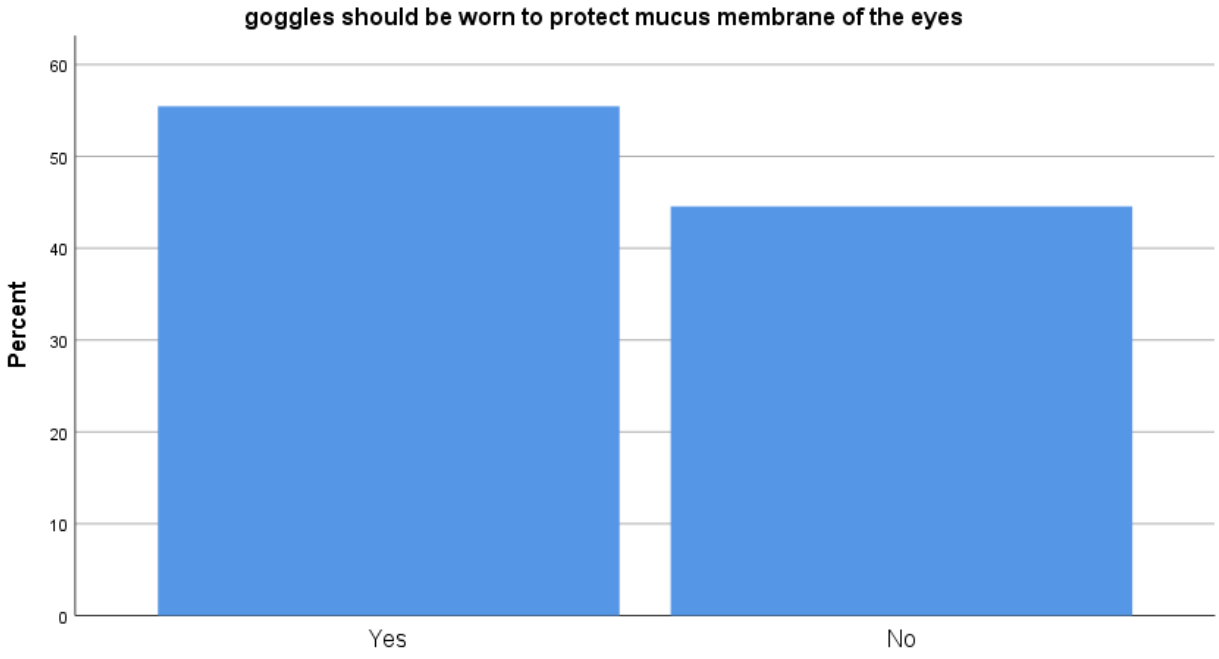

Fig. 9 Goggles should be worn to protect eyes

Table.09 shows that 55.5% participants were agreed with goggles should be worn to protect eyes and 44.5% participants were not agreed.

Table. 10 All staff, patient and visitors should use PPE when there contact with blood and body fluids		
	Frequency	**Percentage**
Yes	96	87.3 %
No	14	12.7 %
Total	110	100 %

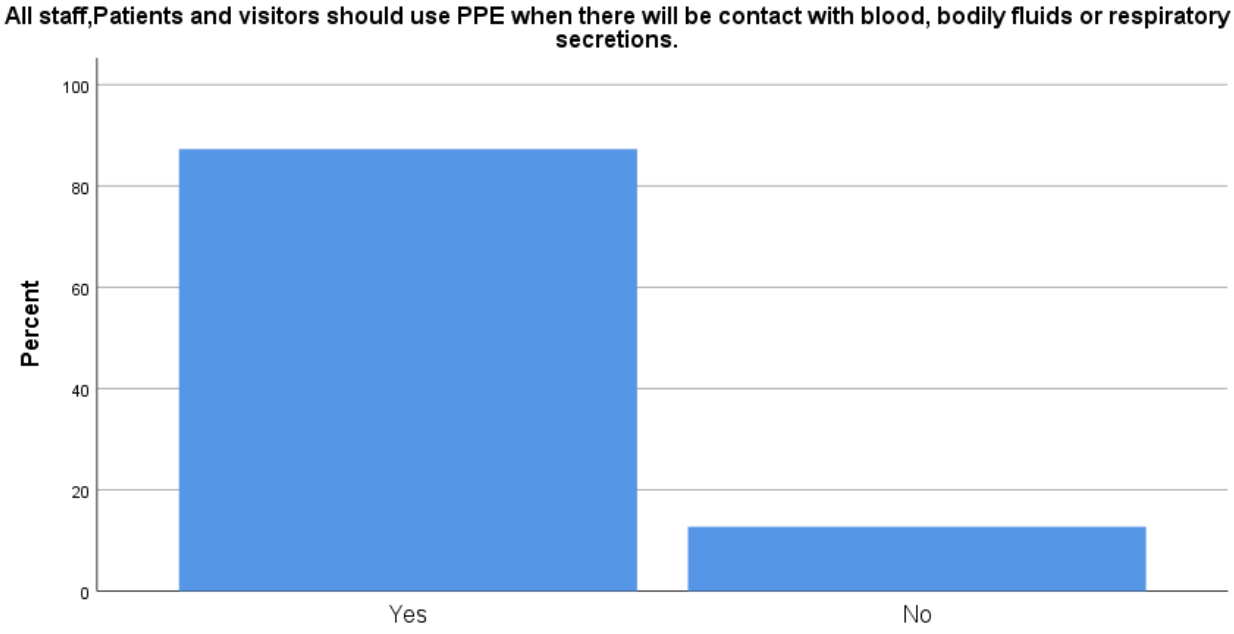

Fig.10 All staff, patient and visitors should use PPE when there contact with blood and body fluids

Table. 10 presents that majority of participants 87.3% were respond 'Yes' on all staff, patients and visitors use PPE while their contact with blood and body fluid and remaining response 'No'.

Table. 11 Surgical masks should be worn to protect nose and mouth		
	Frequency	**Percentage**
Yes	95	86.4 %
No	15	13.6 %
Total	110	100 %

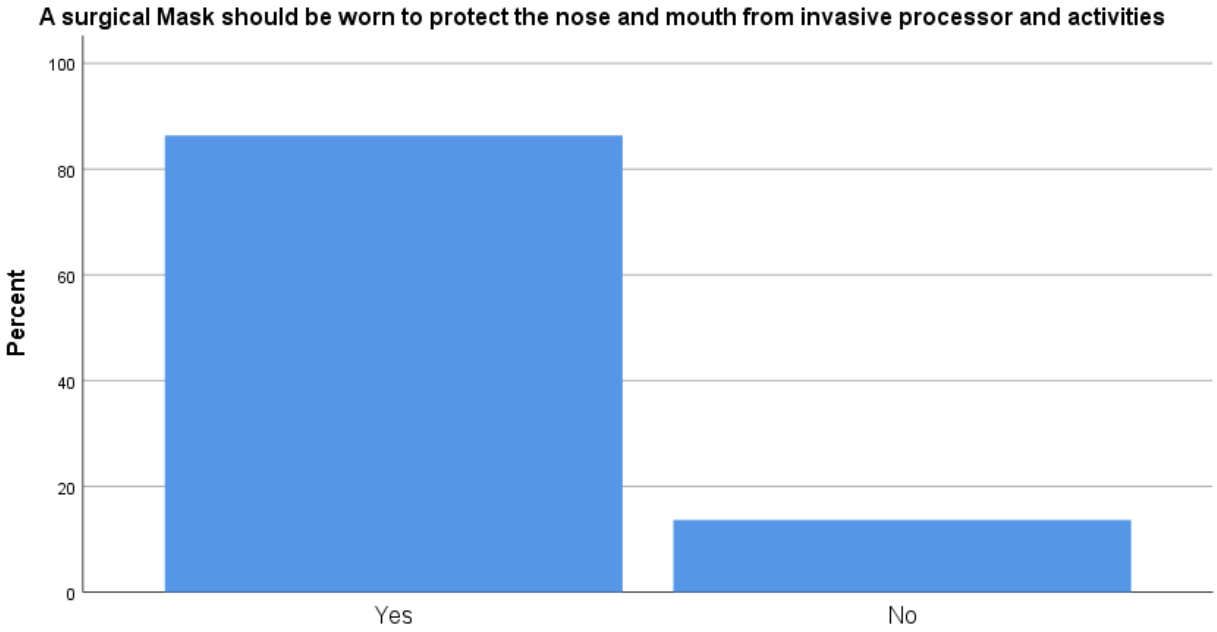

Fig.11 Surgical masks should be worn to protect nose and mouth

Table.11 shows that majority of respondents 86.4 % were agreed with that surgical mask should be worn during invasive procedures and minority 13.6 % were not agreed.

Table. 12 wearing gloves protect hands and reduce spread of germs		
	Frequency	**Percentage**
Yes	84	76.4 %
No	26	23.6 %
Total	110	100 %

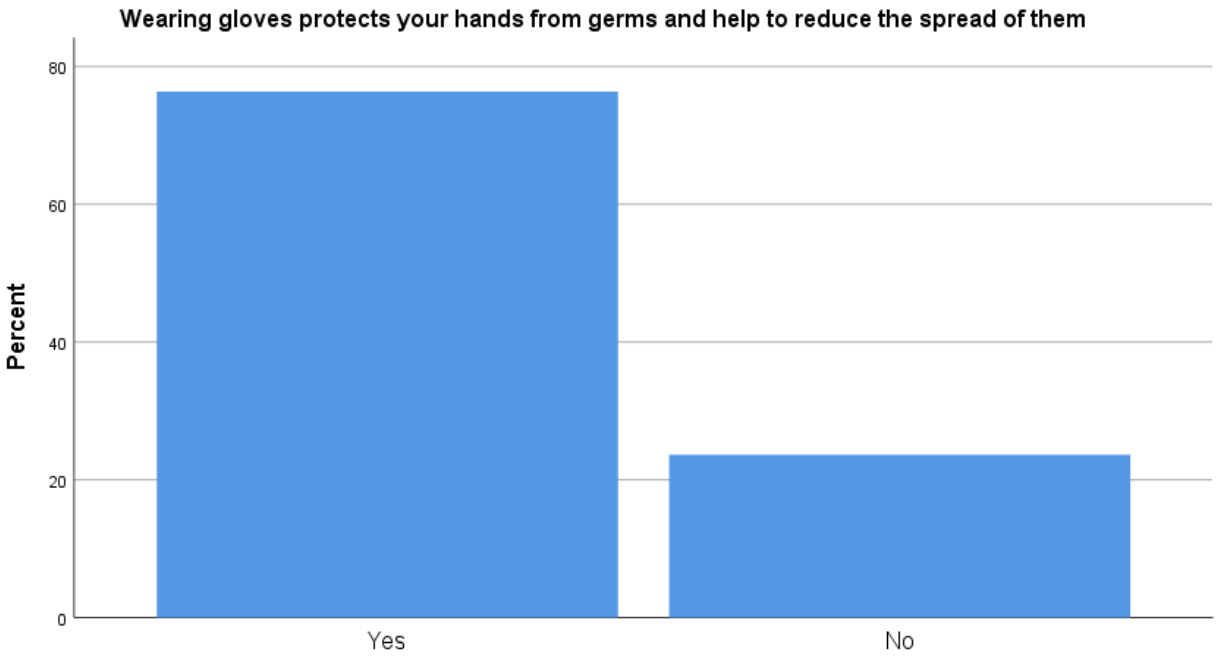

Fig.12 wearing gloves protect hands and reduce spread of germs

Table. 12 represents that 23.6 % response 'No' on wearing gloves protect hand and spread of infection and 76.4 % response 'Yes'.

Table. 13 Is use of PPE can itself create significant work hazards such as heat stress etc.		
	Frequency	**Percentage**
Yes	97	88.2 %
No	13	11.8 %
Total	110	100 %

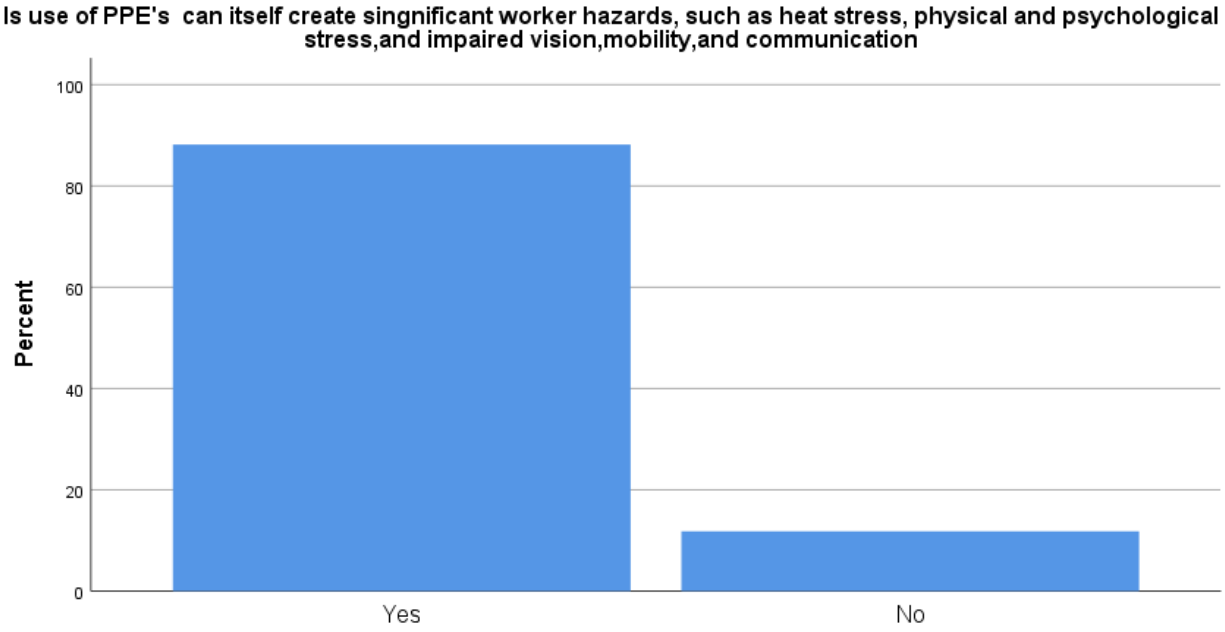

Fig.13 Is use of PPE can itself create significant work hazards such as heat stress etc

Table. 13 shows that 88.2% were respond ‘Yes’ on PPE use can itself create significant work hazards and 11.8% were response ‘No’.

Table. 14 Gown should be worn during contaminated procedures		
	Frequency	**Percentage**
Yes	99	90 %
No	11	10 %
Total	110	100 %

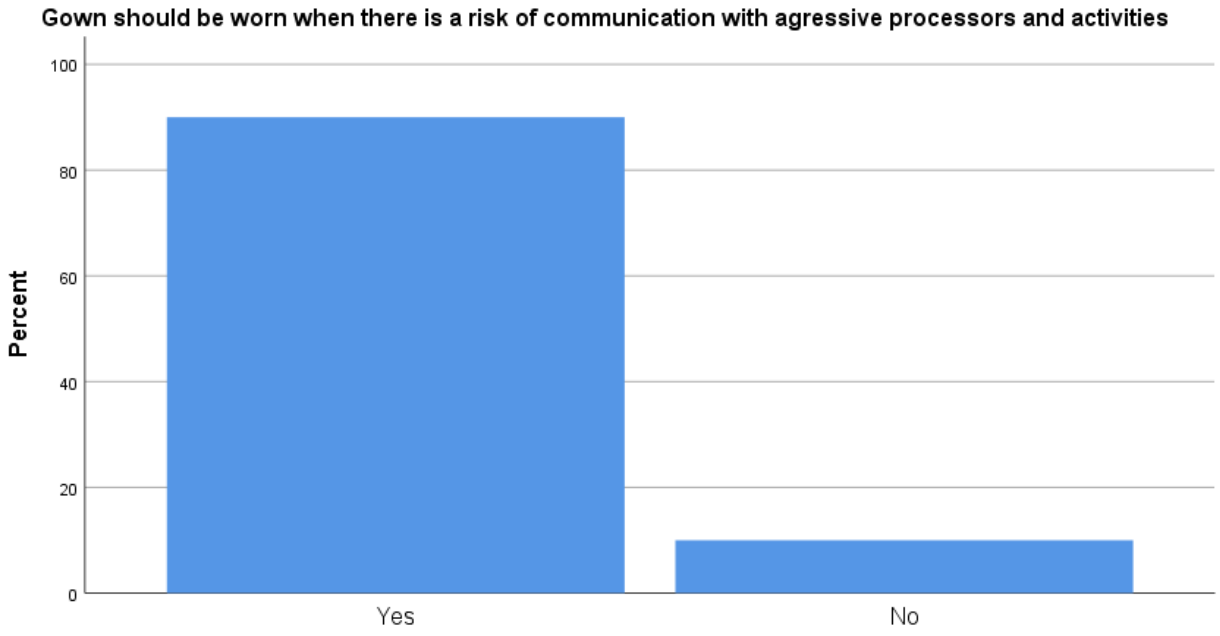

Fig.14 Gown should be worn during contaminated procedures

Table.14 shows that majority participants 90% were agree with that Gown should worn when there is risk of communication with aggressive activities.

Table. 15 One should wearing gloves while taking blood or touching patients' sections		
	Frequency	**Percentage**
Yes	82	74.5 %
No	28	25.5 %
Total	110	100 %

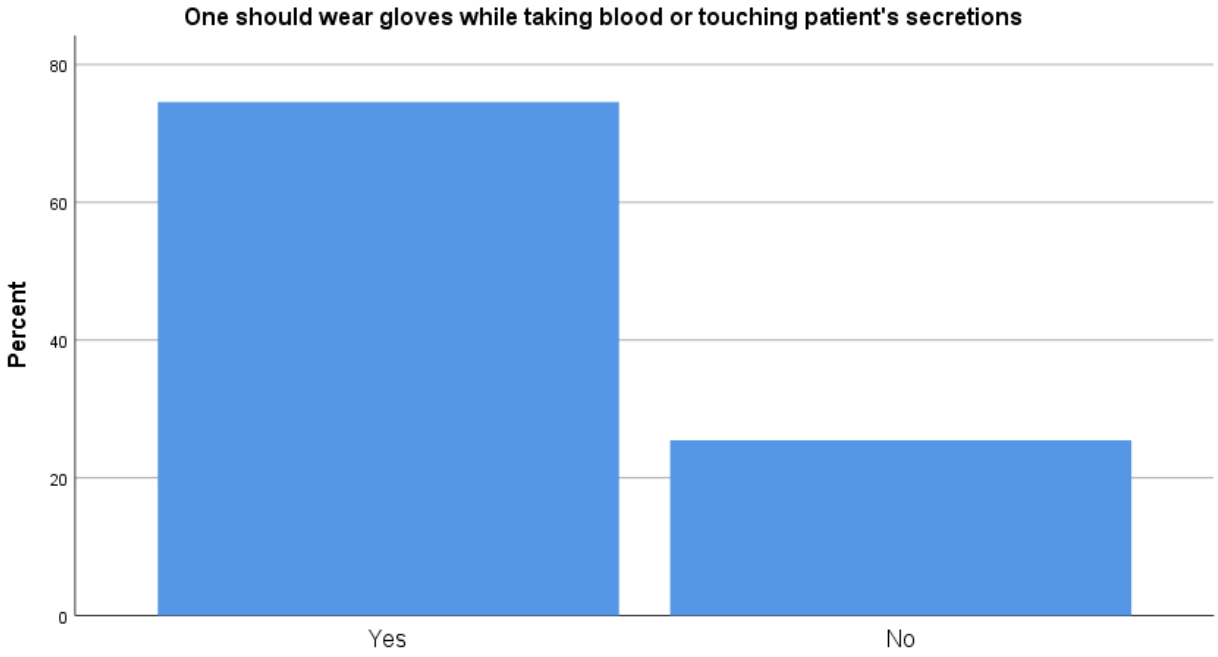

Fig.15 One should wearing gloves while taking blood or touching patients' sections

Table. 15 reveals that 74.5% respondents were response 'Yes' on Gloves should wear while taking blood or touch patients' secretions and remaining response 'No'.

Table. 16 One needs to wearing gloves when put in or out NG tube		
	Frequency	**Percentage**
Yes	83	75.5 %
No	27	24.5 %
Total	110	100 %

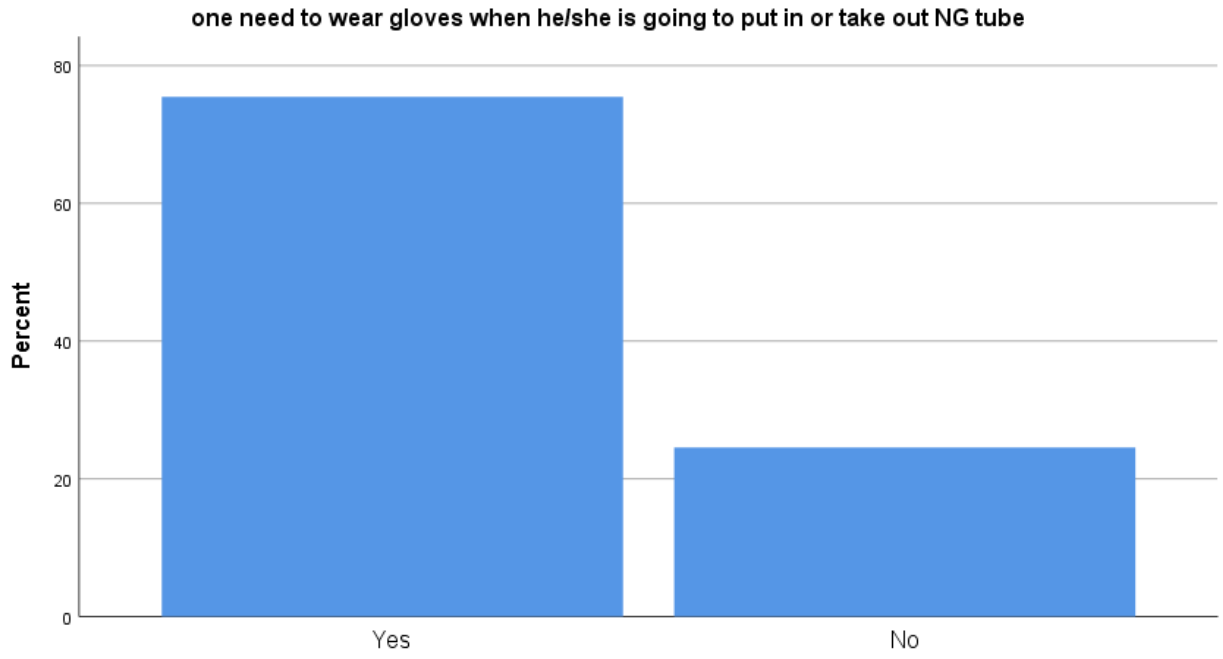

Fig.16 One needs to wearing gloves when put in or out NG tube

Table .16 shows that majority respondents were agree with gloves should wear during put in and out NG tube.

Table. 17 when entering in ICU gown is not necessary		
	Frequency	**Percentage**
Yes	94	85.5 %
No	16	14.5 %
Total	110	100 %

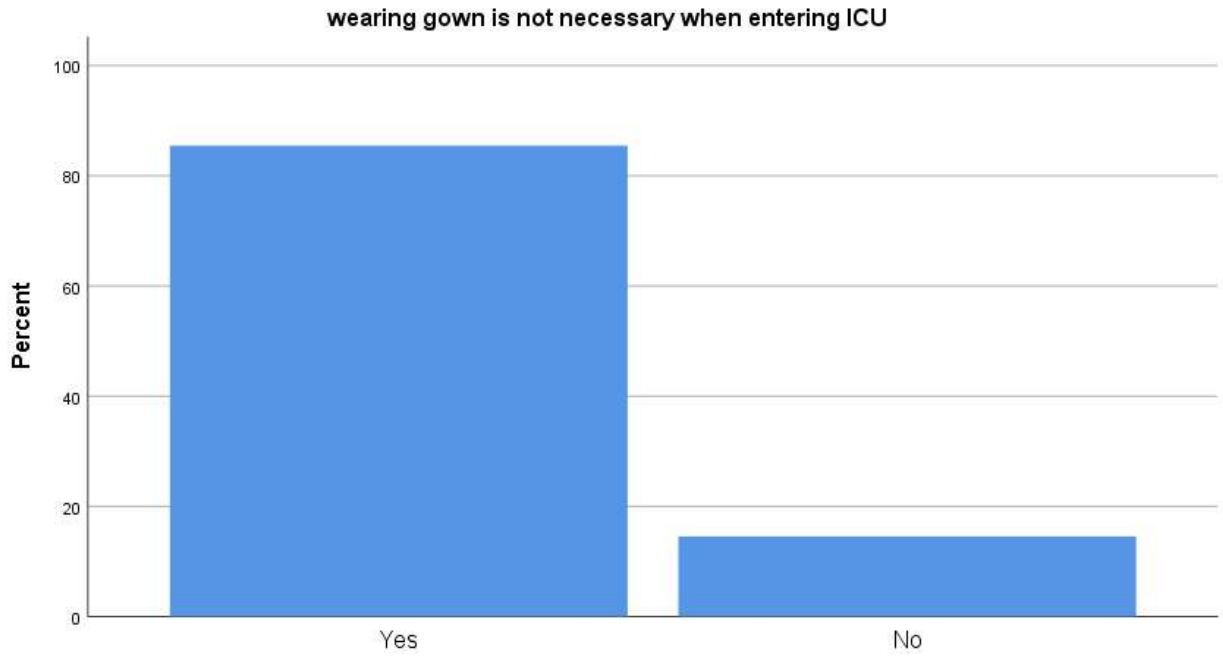

Fig. 17 when entering in ICU gown is not necessary

Table. 17 represents that 85.5% participants were respond 'Yes' on wearing gown is not necessary when entering in ICU and 14.5 % respond 'No'.

Section. 03 Attitude towards PPE

Table. 18 how important is PPE		
	Frequency	**Percentage**
Very important	17	15.5%
Important	39	35.5 %
Don't Know	29	26.4 %
Not important	25	22.7 %
Not important at all	0	0 %
Total	110	100 %
Chi- Square = 1.366 Sig .96 $p > .005$		

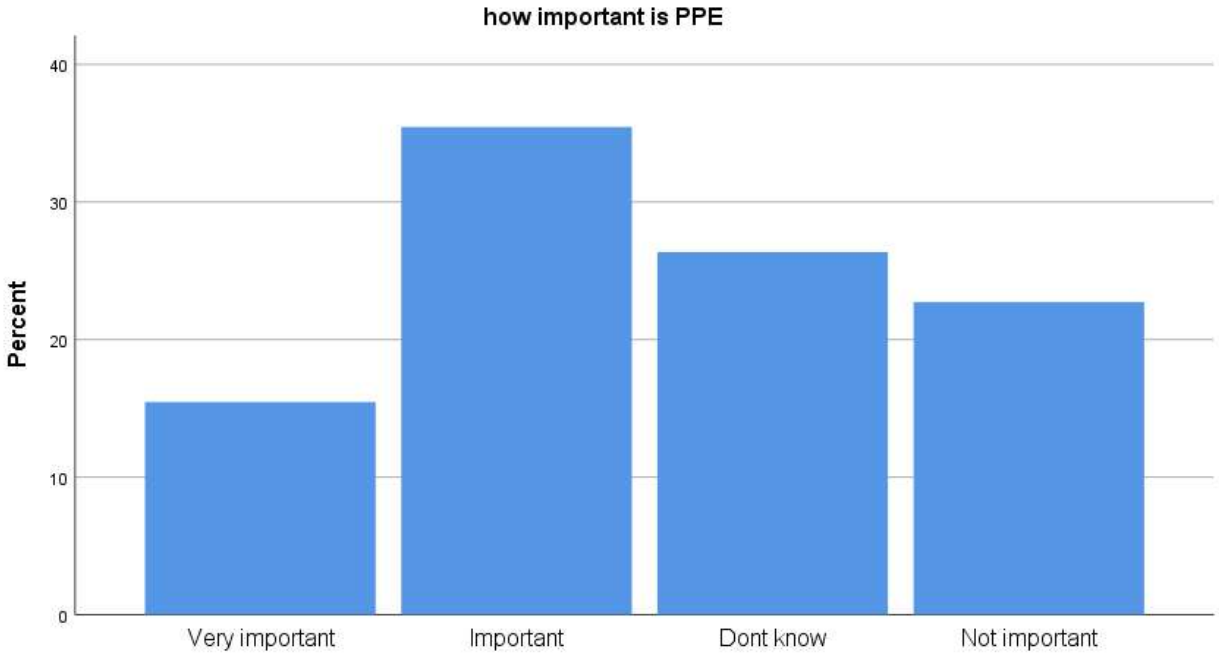

Fig. 18 how important is PPE

Table. 18 presents that only 15.5% participants believed PPE is very important, 35.5% thought it important, 26.4% don't know about it and 22.7% supposed it not important. *P* value > .005 which is not significant.

Table. 19 employees who do not use PPE should be punished		
	Frequency	**Percentage**
Strongly agree	0	0 %
Agree	31	28.2 %
Don't Know	45	40.9 %
Disagree	34	30.9 %
Strongly Disagree	0	0 %
Total	110	100 %
Chi-Square= 1.25	Sig .87	$p > .005$

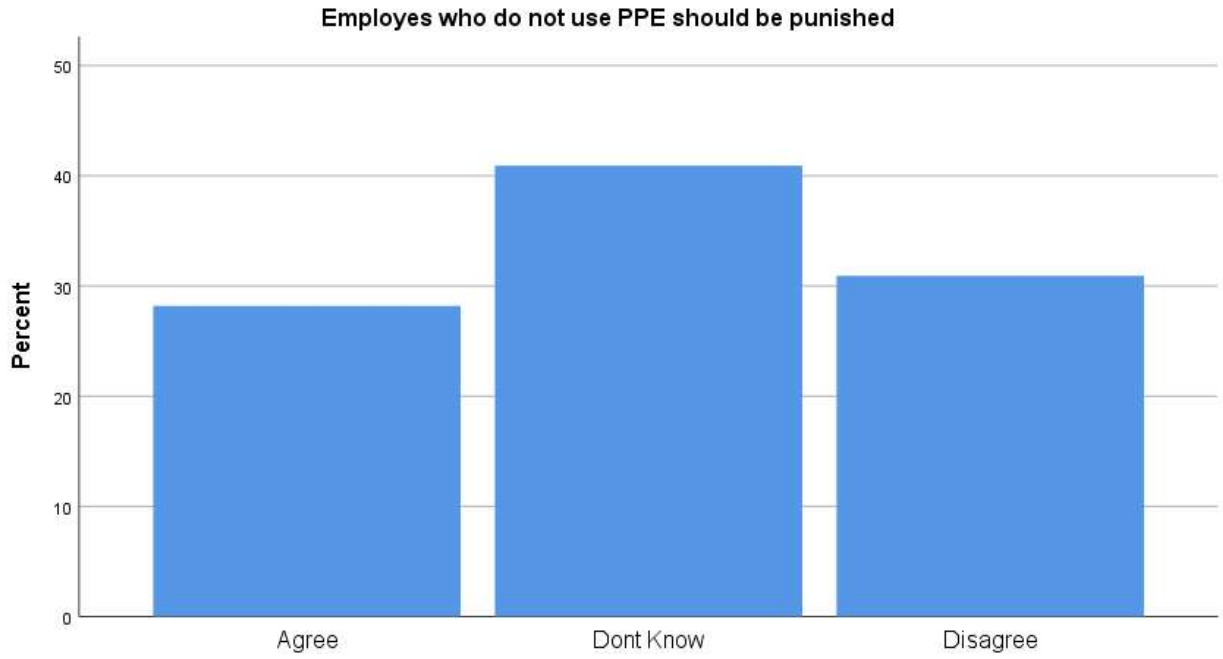

Fig. 19 employees who do not use PPE should be punished

Table .19 represents that 28.2% participants were agree with employees who don't use PPE should be punished, 40.9% don't know and 30.9% were disagree with that. *P* value > .005 which is not significant.

Table. 20 It should be compulsory for employees to use PPE		
	Frequency	**Percentage**
Strongly agree	0	%
Agree	46	41.8 %
Don't Know	14	12.7 %
Disagree	50	45.5 %
Strongly Disagree	0	0 %
Total	110	100 %
Chi-Square = 2.49	Sig .64	$p > .005$

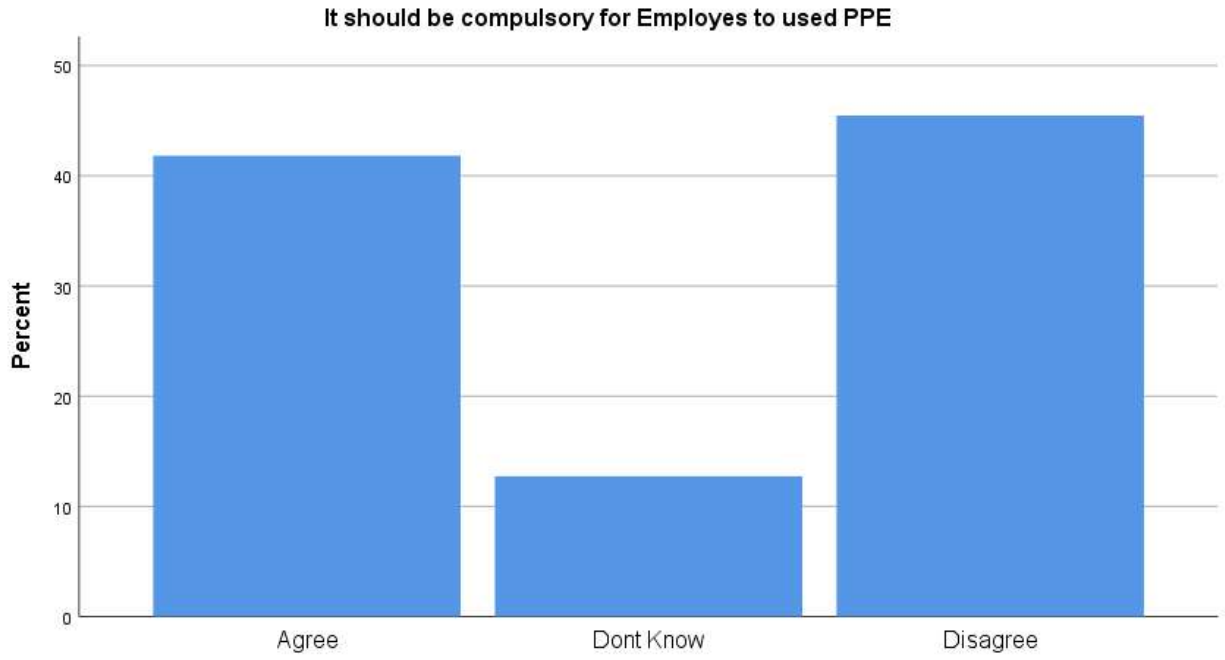

Fig. 20 It should be compulsory for employees to use PPE

Table .20 shows that 41.8% respondents were agree with PPE is compulsory for employees and 12.7% respond 'don't know' and 45.5% were disagree with it. *P* value > .005 which is not significant.

Table. 21 The use of PPE is necessary in work place		
	Frequency	**Percentage**
Strongly agree	0	0 %
Agree	56	50.9 %
Don't Know	2	1.8 %
Disagree	52	47.3 %
Strongly Disagree	0	0 5
Total	110	100 %
Chi- Square = 3.89	Sig .42	$p > .005$

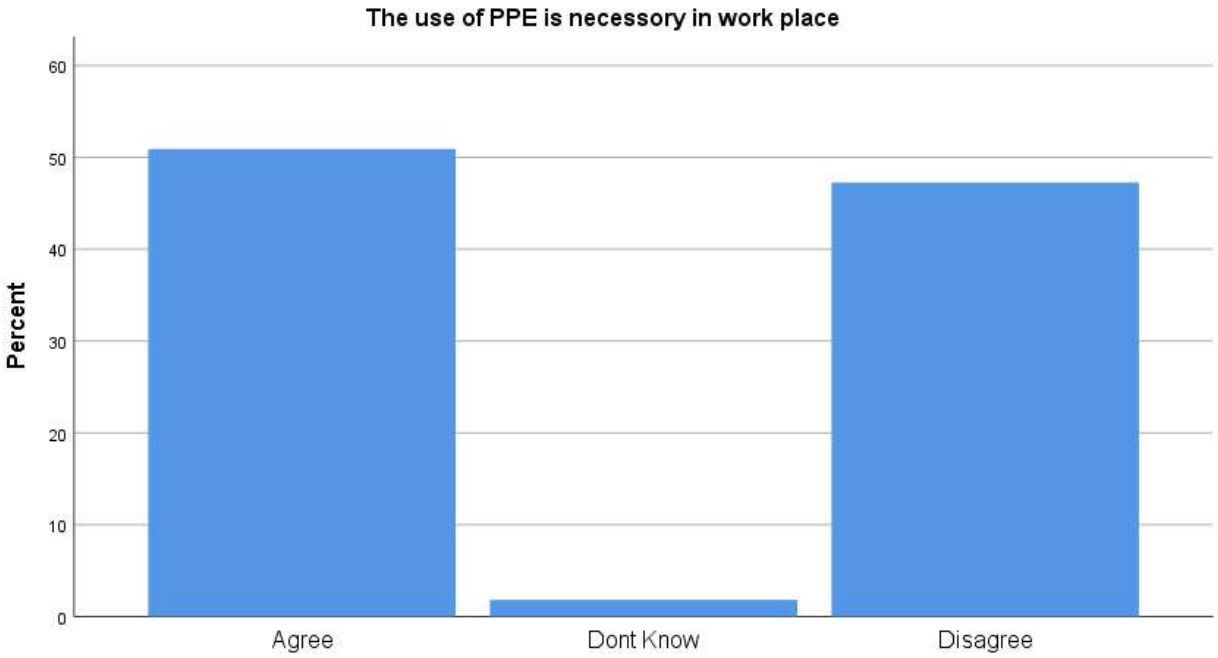

Fig. 21 The use of PPE is necessary in workplace

Table. 21 shows that about half of participants were agreed with 50.9% with that PPE is necessary in workplace and 47.3% were disagreed. *P* value > .005 which is non-significance.

Table. 22 PPE is waste of money		
	Frequency	**Percentage**
Strongly agree	13	11.8 %
Agree	17	15.5 %
Don't Know	21	19.1 %
Disagree	30	27.3 %
Strongly Disagree	29	26.4 %
Total	110	100 %
Chi-Square = 12.03	Sig .15	p > .005

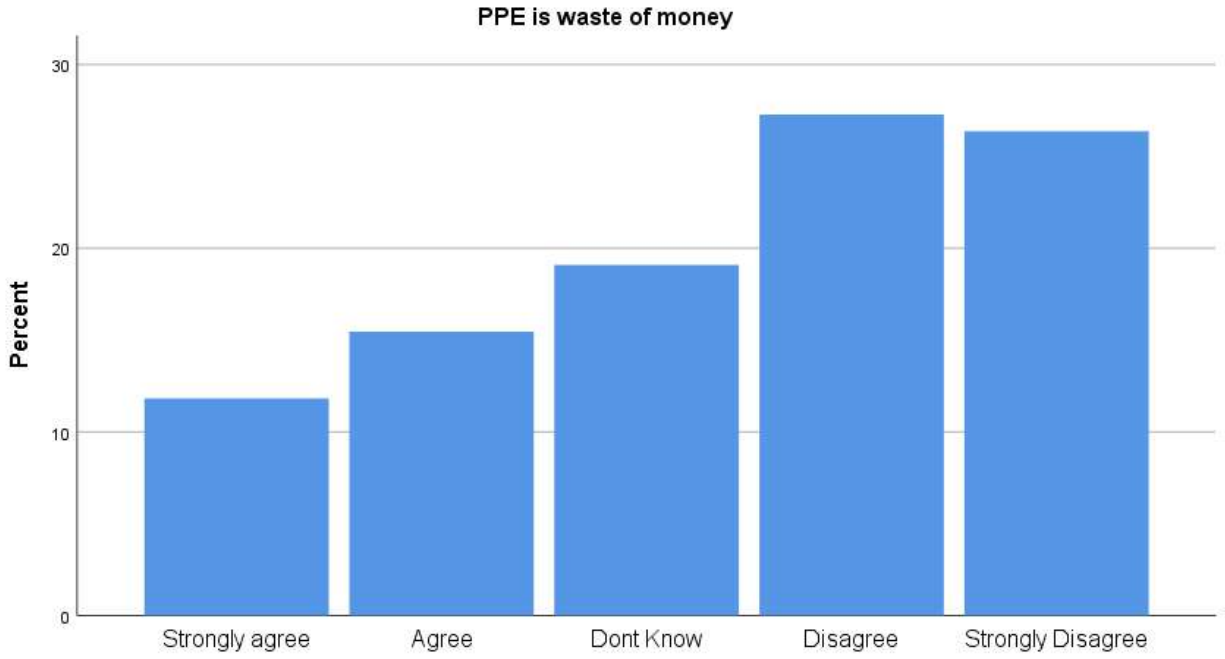

Fig. 22 PPE is wastage of money

Table. 22 presents that 11.8 % were strongly agree and 15.5 % were agree with that PPE is wastage of money, 19.1 respond 'don't know', 27.3% were disagree and 26.4 % were strongly disagree. *P* value > .005 which is not significant.

Table 23. The association between qualification level and Knowledge Score

	Poor Knowledge	Good Knowledge	Excellent Knowledge	Total
General Nursing	6	3	6	15
Post RN	32	21	4	57
BSN	28	6	4	38
Total	66	30	14	110
Chi- Square = 16.7		sig .002		$p < .005$

Table. 23 represents that there was association between participants qualification level and knowledge level. Chi-Square = 16.7 and *p* value is .002 which is less than normally value highly significant).

Table 24. The association between Gender and Knowledge Score

	Poor Knowledge	Good Knowledge	Excellent Knowledge	Total
Male	34	20	9	63
Female	32	10	5	47
Total	66	30	14	110
Chi- Square = 2.25		sig .32		$p > .005$

Table. 24 shows there was no association between gender and knowledge level. *P* value is .32 which is greater than normal value means not significant.

Table 25. The association between Age and Knowledge Score				
	Poor Knowledge	**Good Knowledge**	**Excellent Knowledge**	**Total**
Less than 20 years	0	0	0	0
20-25 years	39	17	7	63
More than 25 years	27	13	7	47
Total	66	30	14	110
Chi- Square = .39		sig .82		$p > .005$

Table. 25 shows that there was no association between age and level of knowledge as *P* value is greater than normal value which means not significant.

CHAPTER-5

5.1 DISCUSSION

PPE's are used to reduce the transmission of infection. The purpose of this research was to determine the level of knowledge and attitude towards the use of PPE among nurses.

In this study, only 13% participants had good knowledge level, 27% had moderate knowledge level and majority 60% had poor knowledge level. Attitude level towards use of PPE was negative (40%). These findings are similar with a study conducted in Nigeria that showed knowledge, attitudes and beliefs of Health care workers regarding the use of PPE were remarkably poor. This study showed only 25.7 % participants had adequate knowledge about PPE (Alao, Durodola, Ibrahim, & Asinobi, 2020). Another study conducted to determine the attitude of nurses towards the use of PPE also found that 52% had negative attitude from affective and cognitive component (Khoerudin, Yudianto, & Shalahuddin, 2020). Unlike, a research found the good knowledge and practices of nurses in workplace (Kajagar, & Degavi, 2020). This difference in results due to nurses' interest of work or sample size difference.

In current study, 76.4% respondents agree with wearing gloves reduce the spread of infection. This finding was like other study, which found the same results (Ganczak, & Szych, 2007). This finding was corresponding with a study conducted by Gozel, et al

who found that 77.4% participants were agreed with the use of gloves (Gozel, et al., 2013).

The use of gown 90% and goggles 55.5% in our study that is differ with another study which found the use of gown 44.3% and goggles 4.4% (Lakshmi, Meriton, & Chritina, 2016). These findings are slightly varied with Jeong et al who found the use of goggles only 2% (Jeong, Cho, & Park, 2008). Nair and Shetty, (2014) found the use of protective eye gear and outer protective clothing was very low 22% and 28% respectively.

In present study, 47.3% respondents were agreed that double glove decrease the risk of infection. Based on the results of another study, double-gloving is also successful in shielding operating room nurses from blood-borne bacterial pathogens. It should be used in routine practice (Guo, Wong, Li, & Or, 2012). These findings are dissimilar with Tanner and Parkinson who found that there is no direct evidence of additional gloves worn by the surgical team prevents the surgical site infection (Tanner, & Parkinson, 2006).

According to Chi-Square values in this study, the association between gender and knowledge was non-significance, *p* value > .005 whether gender male or female did not impact on being knowledgeable or not. These findings are corresponded with research study conducted by Magoro, who found the same results (Magoro, 2012).

In this study, qualification level and knowledge level were significantly associated with each other as *p* value < .005, it is statistically significant. Education had impact on knowledge. These results resemble with a study by Ziauddin et al who also found the association between education and knowledge (Ziauddin, Swathi, Maruthi, & Lakshman Rao, 2006).

5.3 CONCLUSION

Nurses knowledge and attitude were not good towards PPE in this study. There is need to aware the nurses about the use of PPE. Understanding the reasoning behind the use of PPE helps nurses when undertaking patient care to select the right tool. Understanding the function, types and proper use of PPE is important for nurses. The successful use of PPE protects against the transmission of transmissible infections by staff, patients and healthcare facilities. It is also critical that nurses are aware of the risk of infection from direct or indirect contact with blood or bodily fluids, the environment and equipment to transmissible pathogens. Nurses should be aware of PPE requirements and be able to undertake appropriate risk assessments, as well as using their clinical reasoning when deciding whether or not to use PPE.

5.4 RECOMMENDATION

Based upon the result of the current study, the following recommendations can be construed.

5.4.1 For Hospital Administration

- Educational programs should be conducted to enhance the knowledge of nurses towards PPE.
- Motivational awareness should be given to change their attitude.
- Continuous appraisal should be given on proper practice of employees.

- Head Nurses and infection control team should supervise the bed side nursing care.

5.4.2 For Further Research

- Sample size should large enough to generalize the study findings.
- Experimental and causi-experimental researches should be conducted to increase the nurse's knowledge and implementation of evidence-based practice.

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Appendix

Consent Form

KNOWLEDGE AND ATTITUDE REDARDING USE OF PERSONAL PROTECTIVE EQUIPMENTS AMONG NURSES IN PRIVATE HOSPITAL LAHORE.

Government College University Faisalabad

I ……...……, wife of……Hereby, fully agree to contribute in the above-mentioned study. My designation is……I understand that the study is designed to assess the prevalence and risk factors of preterm birth among primigravida women. I have been informed about the nature of the participation and possible risks and /discomfort involved. I have the opportunity to ask the question about the study and I agree to give my response as requested by the researcher (MS Sehrish Arshad). I have no objection in case the data obtained from my investigation is published in research publication while maintain confidentiality.

Date…….....

…… ……. …….

DR. Asif Hanif MS. Roobina Zahra Signature of Participant

The Supervisor The Researcher

Questionnaire

Gender	☐ Male ☐ Female	**Marital Status**	☐ Married ☐ Single
Age Group	☐ Less than 20 years ☐ 20 yrs to 25 years ☐ Above 25 years	**Qualification**	☐ General nursing ☐ Post RN ☐ BSN

Variables of the study

SR NO	KNOWLEDGE	YES	NO	DON'T KNOW
1	Wearing gloves eliminates the need for hand wash	1	2	3
2	Hand Washing after removal of gloves is eesssential	1	2	3
3	Can double gloves reduce the chance of crosss infection	1	2	3
4	Gloves should be worn when touching mucus membrane or non-intact skin.	1	2	3

5	Goggles should be worn to protect mucous membrane of the eyes.	1	2	3
6	All staff, patients and visitors should use PPE when there will be contact with blood, bodily fluids or respiratory secretions.	1	2	3
7	A surgical mask should be worn to protect the nose and mouth from invasive processor and activities	1	2	3
8	wearing gloves protects your hands from germs and helps to reduce the spread of them.	1	2	3
9	Is use of **PPE's** can itself create significant worker **hazards**, such as heat stress, physical and psychological stress, and impaired vision, mobility, and communication	1	2	3
10	Gown should be worn when there is a risk of Contaminated with aggressive processors and activities	1	2	3
11	One should wear gloves while taking blood or touching patient's secretions	1	2	3

12	One needs to wear gloves when he/she is going to put in or take-out NG tube.	1	2	3
13	Wearing gown is not necessary when entering ICU.	1	2	3

Attitude Section

1	How important is PPE	Very Important	Important	Don't Know	Not Important	Not important at all
2	Employees who do not use PPE should be punished	Strongly Agree	Agree	Don't know	Disagree	Strongly Disagree
3	It should be compulsory for employees to use PPE	Strongly Agree	Agree	Don't know	Disagree	Strongly Disagree
4	The use of PPE is necessary in work place	Strongly Agree	Agree	Don't know	Disagree	Strongly Disagree
5	PPE is waste of money	Strongly Agree	Agree	Don't know	Disagree	Strongly Disagree