



## FACTORS INFLUENCING NURSES' COMPLIANCE WITH STANDARD PRECAUTIONS: IMPLICATIONS FOR TARGETED INTERVENTIONS AND PRACTICE IMPROVEMENT

Bushra Javid<sup>1</sup>, Zahra Nazish<sup>2</sup>, Nasim Akhtar<sup>3</sup>, Qamar-un-Nisa<sup>4</sup>

<sup>1</sup>College of Nursing, Nishtar Medical University, Multan.

Email: [bushra.javid.855@gmail.com](mailto:bushra.javid.855@gmail.com)

<sup>2</sup>Professor and Chairperson, Department of Medicine, Nishtar Medical University, Multan.

Email: [zahranazish@ail.com](mailto:zahranazish@ail.com)

<sup>3</sup>Principal, College of Nursing, DHQ Hospital, Khanewal.

Email: [nasimakhter446@gmail.com](mailto:nasimakhter446@gmail.com)

<sup>4</sup>Dean/Principal, College of Nursing, Nishtar Medical University, Multan.

Email: [qamarunnisa1122@gmail.com](mailto:qamarunnisa1122@gmail.com)

### ARTICLE INFO:

#### Keywords:

Compliance, Standard Precautions, Infection prevention.

#### Corresponding Author:

**Bushra Javid,**

College of Nursing, Nishtar Medical University, Multan.

Email:

[bushra.javid.855@gmail.com](mailto:bushra.javid.855@gmail.com)

#### Article History:

Published on November 28, 2025

### ABSTRACT

**Objective:** To identify and analyze the factors influencing nurses' compliance with standard precautions, providing insight for targeted interventions and improved adherence.

**Material and Methods:** Forty-five Registered Nurses fulfilling the inclusion criteria were enrolled in study from Nishtar hospital Multan. A total of professional nurses from various departments at public hospital were present at the time the data was collected. As a result, the majority of participants were the nurses who would have jobs at this public hospital on a permanent basis. The data was analyzed through software SPSS - 25.

**Results:** Mean age of our study cases was  $39.22 \pm 8.73$  years (Range; 25 years to 58 years) while 57.8 % (n=26) were aged up to 40 years. Factors responsible for compliance, protection of patient and self comes first and patients' education about benefits of PPEs, 95.6 % (n = 43). Regarding, protection from being exposed to germs after usage of standard precautions, 95.6% (n=43) reported yes and 4.4 % (n=2) reported otherwise. Regarding positive role in not being the carrier of infection satisfies you, 93.3% (n=42) reported Yes while remaining 6.7 % reported No. Forty three (95.6 %) of these nurses agreed that Previous exposure to micro-organisms makes them concern with usage of SP and all of them (100%) agreed that Continuous reminders and continuous education are necessary for SP guidelines. Forty (88.9%) of these study participants reported that Patients personal look and hygienic condition was also a cause of following SPs.

Thirty-six (80.0 %) of our study participants also agreed that Education level of patient is also main cause to use SPs and all of them (100 %) described that Act of following the standard precautions by senior

colleagues and doctors urges them to use the same SPs. Forty-one (91.1 %) of these nurses also reported that Fear of infecting their family makes them conscious to use SPs and Pressure from seniors is also a cause of following the guidelines of SPs was also reported by all (100%) these study participants. Equipment not in easy access or locked was reported by 75.6 % (n = 34) while 88.9 % (n = 40) reported activities of patient care were not carried properly as venipuncture was difficult with gloves and all of them reported that use of gloves irritated their skin. Forty-three (95.6 %) reported Multiple responsibilities and work load prohibits them to use SPs and all 45 study participants reported Patients discomfort with their use of SPs. Six (13.3 %) reported Usage of masks and gloves destroys their looks while all of them (100%) reported shortage of nursing staff was also main cause of non-compliance with standard precautions. Forty (88.9%) reported Nursing care to children with gloves and mask made them uneasy and all of them (100%) reported lack of PPEs and poor fitting of PPEs.

**Conclusion:** Lack of easy access to the equipment, shortage of nursing staff, multiple responsibilities & workload and poor fitting of the personal protective equipment were the main factors affecting nurses' compliance with infection prevention. Overall, nurses' compliance was good along with good knowledge and practices. Local Governments should take measures to overcome shortage of nurses and equipment to share burden of work. This will improve further the compliance of nurses which will, in turn ensure patient safety and effective infection prevention program. This will decrease prolonged hospital stays due to nosocomial infections and decrease extra-healthcare expenditures.

## INTRODUCTION

Nurses' adherence to standard precautions (SPs) to prevent occupational exposure to microorganisms is vital for their safety and infection control (Dakhilallah, 2023). Nurses who understand the risks of infection and the importance of SPs are more likely to follow them (Lim et al., 2021). Continuous education on infection prevention strengthens their knowledge. Institutions that foster a culture of safety with visible management backing for infection control tend to see higher compliance rates and well-defined enforced infection control policies are crucial (Parindra et al., 2025). Nurses supported by robust procedures are more likely to adhere to SPs and positive environment of teamwork and mutual responsibility among staff enhances compliance (Parindra et al., 2025).

Standard precautions are aimed at protecting both patients and healthcare professionals (Ojanperä et al., 2020). The

use of SP is recommended for delivering care to all patients, independently of their presumed infection state, when handling equipment and devices that are contaminated or suspected of contaminations, in a situation of contact with blood, body fluids, secretions, and excretions except for sweat (Alhumaid et al., 2021).

Nurses are influenced by their peers' behaviors. When colleagues comply with infection control procedures, it encourages others to do the same. SP measures are hand hygiene, use of personal protective equipment such as gloves, apron, masks, gown and protective goggles; needle safety, and safe handling of potentially contaminated equipment or surfaces in the patient environment including respiratory hygiene and disposal of sharps, body fluids, and other clinical wastes properly (Powers et al., 2016).

Knowledge and training play key role to help nurses in protecting themselves and

others from infections such as; when nurses truly grasp how infections spread and the dangers involved, they're more likely to follow safety guidelines. This awareness helps them realize the critical role they play in keeping everyone safe. Training gives nurses the practical skills they need to use protective equipment correctly, wash their hands effectively, and handle sharp objects safely. (Aldakhil et al., 2024).

Nurses have an ethical responsibility to protect themselves, their patients, and their colleagues from harm. Personal Protective Equipment (PPE) is crucial for ensuring the safety of nurses and controlling infections in healthcare environments (Alhofaian et al., 2023). PPE provides a physical shield between nurses and harmful microorganisms like bacteria and viruses, which is especially important when treating patients with infectious diseases like COVID-19, influenza, or tuberculosis (Ahmed et al., 2020).

The proper use of PPE minimizes the risk of spreading infections between patients, helping reduce hospital-acquired infections (HAIs) (McCauley et al., 2021). Using PPE is a reflection of their commitment to maintaining a safe healthcare environment. PPE is essential for protecting nurses from infections, hazardous materials, and physical injuries. It plays a key role in infection control, preventing the spread of diseases within healthcare facilities and safeguarding public health. The effective use of PPE is fundamental to ensuring both nurse safety and patient care (Maani-Abuzahra et al., 2025).

In 1970, the first set of preventive guidelines was issued by the CDC to help health care professionals protect themselves and patients from the transmission of microorganisms, followed by a revision in 1983. In 1987, the Universal Precautions were released. They, among others, required health care professionals to treat every patient as potentially infectious (McCauley et al., 2021).

Training helps nurses address common issues, like feeling uncomfortable in

protective gear or being unsure about certain procedures. Practice makes these tasks feel more natural and easier to manage. Knowledge empowers nurses, giving them the belief that they can protect themselves and others effectively (Mastrogianni et al., 2023). This sense of control leads to greater commitment to safety protocols. In tough or high-risk situations, such as during disease outbreaks, well-trained nurses are able to quickly assess the situation and apply the necessary precautions in ensuring they stay safe. Knowledge and training give nurses the tools they need to confidently protect themselves and their patients. By raising awareness, building confidence, and reinforcing good habits, education makes a real difference in how nurses handle infection risks day-to-day (Mouajou et al., 2022).

Knowledge and compliance with SP are important to prevent hospital-associated infections and protect patients as well as medical workers from exposure to infectious agents. Besides, nursing students on the other hand are also more vulnerable to any form of hospital-acquired infectious during training skills and acquisitions (8). Nursing students are often exposed to various infections during their clinical education or training and they have a responsibility to protect themselves (9). According to Attala et al (9), nursing students should be able to do the caring of patients after learning the principles of SP. Effective training is essential to ensure the concepts about SP are understood and put into practice wherever health care is provided (Tuannor Atiqah Tuan Anuar, 2021)

Excessive workloads and staff shortages can lead to fatigue, burnout, and insufficient time to properly follow safety protocols. The impact of workload and staffing shortages on nursing performance is a significant concern in healthcare can have influence on various associated aspects. High nurse-to-patient ratios can reduce the attention given to each patient, leading to medical mistakes such as incorrect medication administration or missed

treatments(Nasution et al., 2023).

A heavy workload can restrict the time nurses spend with patients, affecting the quality of care, communication and patient education. Shortage of nurses usually results in compromised patient safety such as higher risks of falls, infections, and delayed response to patient demands. To address these challenges, healthcare organizations can either ensure appropriate nurse-to-patient ratio, providing moral support and automated latest technological advancements. Addressing these issues is vital for maintaining high-quality care, improving nurse well-being, and achieving better patient outcomes (Musu et al., 2017).

In fast-paced environments, nurses may bypass safety measures to save time. Workload and staffing shortages play a major role in affecting nurses' compliance with standard precautions (SPs) for preventing exposure to microorganisms. When nurses have a heavy patient load, they're often forced to work at a faster pace, which can lead to shortcuts in infection control practices such as skipping hand hygiene or improper use of personal protective equipment (PPE)(Ojanperä et al., 2020).

Long shifts and excessive workloads can result in physical and mental fatigue. Tired nurses are more prone to making mistakes or overlooking important safety measures, increasing the risk of exposure. In understaffed settings, collaboration may suffer, reducing the opportunity for nurses to support each other in maintaining infection control measures, especially when one nurse is too busy (Parkin, 2012). However, some studies showed that compliance with Standard Precautions among nurses is still sub-optimal and inconsistent (organisation, 2025). Experience in nursing strengthens clinical skills, decision-making, communication, patient safety, and leadership. With experience, nurses are better at identifying early warning signs of patient deterioration and taking preventive actions to avoid negative outcomes. Over time, nurses develop the confidence,

expertise, and resilience needed to handle complex healthcare situations, leading to improved patient outcomes and overall care quality(Awal, 2025).

More experienced nurses can make faster, more informed decisions in high-stress situations, quickly assessing patient conditions and anticipating potential complications. Experienced nurses are less prone to mistakes due to their familiarity with procedures and protocols, enabling them to recognize and mitigate risks before complications arise(Armstrong-Novak et al., 2023).

## **MATERIALS & METHODS:**

**Research Design:** In order to evaluate the factors influencing positively and negatively to Nurses' compliance with SP the researcher used a quantitative design that was a cross-sectional descriptive, exploratory, analytical, and contextual in character.

**Setting:** Nishtar Hospital, Multan.

**Target Population:** A total of professional nurses from various departments at public hospital were present at the time the data was collected. As a result, the majority of participants were the nurses who would have jobs at this public hospital on a permanent basis.

**Duration:** About Six months was the time period that was spent in this study.

**Sample Size:** The sample size was approximately 45.

**Sampling Technique:** Professional nurses working in different departments of tertiary care hospital Nishtar hospital Multan was included in the sample through simple Random Sampling technique.

### **Sample Selection:**

#### **Inclusion criteria Characteristics:**

1. **Gender:** Female
2. **Profession of Healthcare provider:** Registered Nurses/Nursing officers
3. **Job Experience:** Above six months
4. **Type of Employment:** Regular/Permanent

#### **Exclusion criteria**

1. Anyone who was Sick during the

collection of Data

2. Who willingly withdraw the study
3. Involuntary Participants

### METHODOLOGY:

**Data Collection:** Forty-five Registered Nurses fulfilling the inclusion criteria were enrolled in study from Nishtar hospital Multan. Informed consent was taken. Demographic data (including name, age, gender experience, qualification) will also be recorded.

**Statistical Analysis:** The Data was analyzed through software SPSS latest Version and Microsoft Excel, descriptive and analytical statistics was used to find out the results.

### RESULTS

Our study comprised of 45 nurses working in different departments of Nishtar Hospital Multan and mean age of these nurses was Mean age of our study cases was 39.22+ 8.73 years (Range; 25 years to 58 years) while 57.8 % (n=26) were aged up to 40 years (Table No. 1).

Of these 45 nurses included in our study, 42.2 % (n = 19) were diploma holders and 57.8 % (n=26) were graduate nurses. Thirty-five (77.8%) were working on regular basis while 22.2 % (n=10) were contractual. Mean duration of experience of these study participants was 13.24 ± 9.78 years and 62.2% (n = 28) of our study participants had experience for more than 10 years (Table No. 2 - 4).

Regarding Protection of patient and yourself

comes first and you educate the patients about benefits of PPEs, 95.6 % (n = 43) reported yes and 4.4 % (n=2) reported otherwise. Regarding, protection from being exposed to germs after usage of standard precautions, 95.6 % (n = 43) reported yes and 4.4 % (n=2) reported otherwise. Regarding positive role in not being the carrier of infection satisfies you, 93.3%(n=42) reported Yes while remaining 6.7% reported No.

Forty-three (95.6%) of these nurses agreed that Previous exposure to micro-organisms makes them concern with usage of SP and all of them (100%) agreed that Continuous reminders and continuous education are necessary for SP guidelines. Forty (88.9%) of these study participants reported that Patients personal look and hygienic condition was also a cause of following SPs.

Thirty-six (80.0%) of our study participants also agreed that Education level of patient is also main cause to use SPs and all of them (100 %) described that Act of following the standard precautions by senior colleagues and doctors urges them to use the same SPs. Forty-one (91.1 %) of these nurses also reported that Fear of infecting their family makes them conscious to use SPs and Pressure from seniors is also a cause of following the guidelines of SPs was also reported by all (100%) these study participants.

**Table No. 1 Age wise distribution of study cases (n=45)**

Age groups	Frequency	Percentage
Upto 40 Years	26	57.8
More than 40 Years	19	42.2
<b>Total</b>	<b>45</b>	<b>100</b>

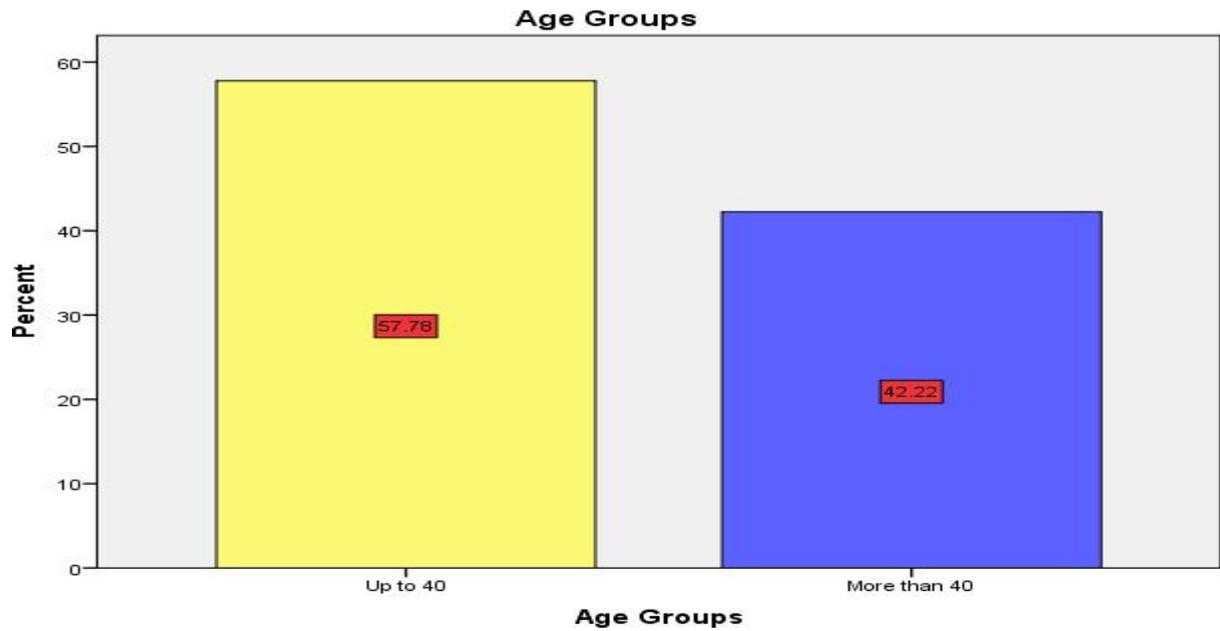


Figure No. 1 Age wise distribution of study cases (n=45)

Table No. 2 Distribution of qualification among study cases(n=45)

Qualification	Frequency	Percentage
Diplomaholder	19	42.2
Graduate	26	57.8
<b>Total</b>	<b>45</b>	<b>100</b>

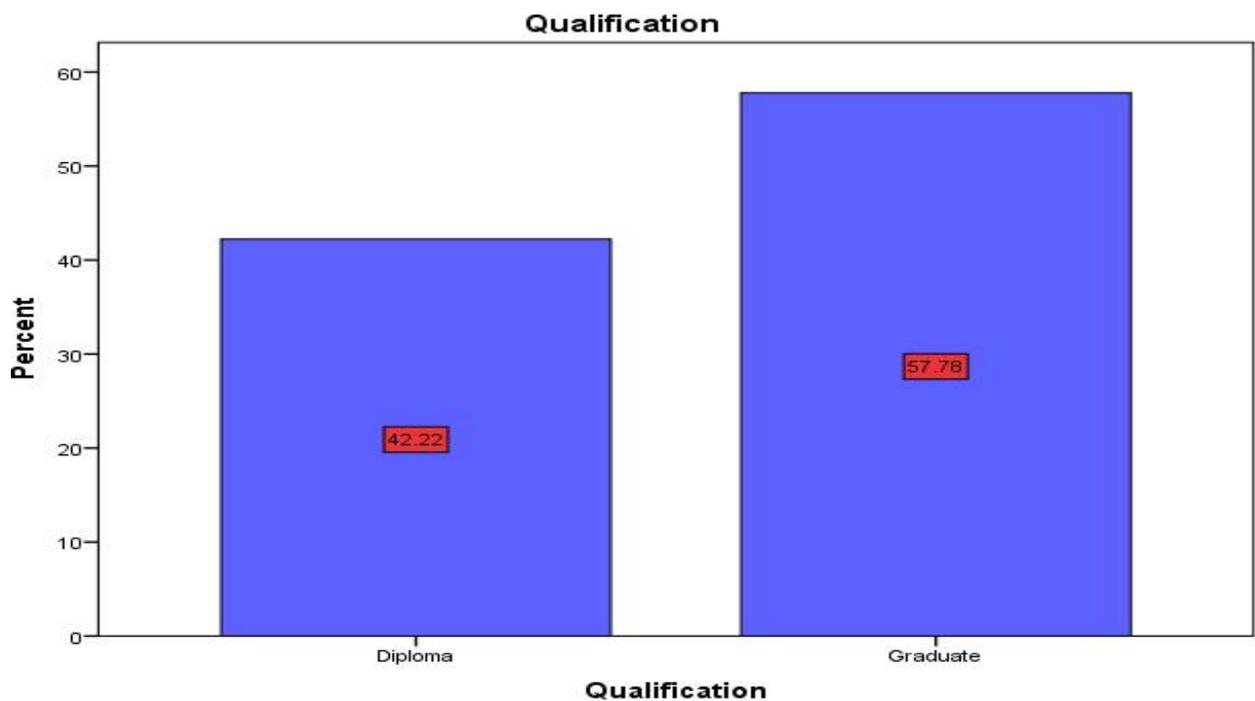
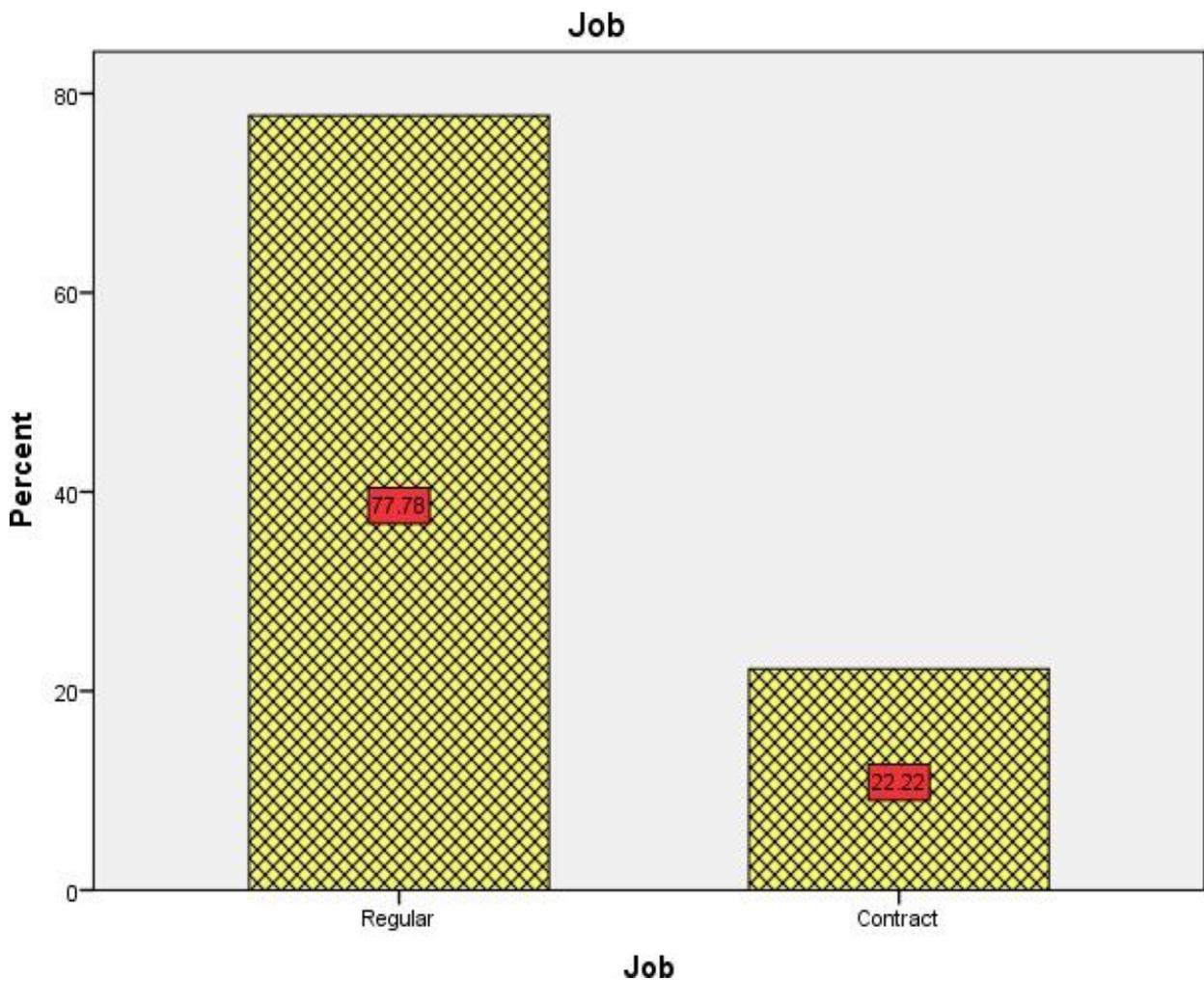


Figure No. 2 Distribution of qualification among study cases (n=45)

**TableNo.3 Distribution of type of job among study cases (n=45)**

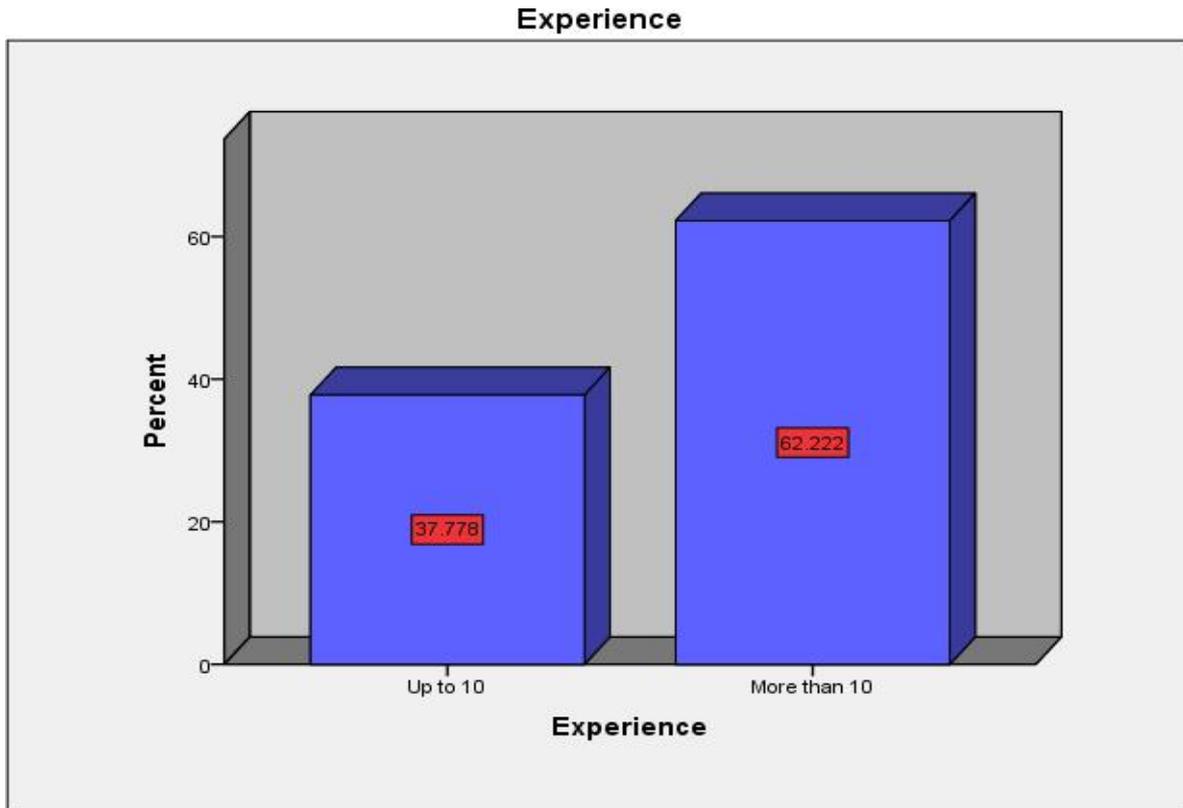
Type	Frequency	Percentage
Regular	35	77.8
Contractual	10	22.2
<b>Total</b>	<b>45</b>	<b>100</b>



**Figure No.3 Distribution of type of job among study cases (n=45)**

**Table No.4 Distribution of years of experience among study cases.(n=45)**

Experience	Frequency	Percentage
Upto10 years	17	37.8
Morethan10Years	28	62.2
<b>Total</b>	<b>45</b>	<b>100</b>



**FigureNo. 4** Distribution of years of experience among study cases (n=45)

**Table 5 Combined Response Table – Factors Influencing Nurses’ Compliance with Standard Precautions (n = 45)**

No.	Item / Question	Yes (n)	Yes (%)	No (n)	No (%)
1	Protection of patient and yourself comes first	43	95.6	2	4.4
2	Feeling protected from exposure to germs after using SP	43	95.6	2	4.4
3	Satisfaction regarding positive role in infection control	42	93.3	3	6.7
4	Previous exposure to micro-organisms increases SP use	43	95.6	2	4.4
5	Continuous reminders & education necessary for SP	45	100	0	0
6	Patient hygiene influences SP practices	40	88.9	5	11.1
7	Patient education level influences SP use	36	80.0	9	20.0
8	Seniors’ compliance motivates own SP usage	45	100	0	0
9	Fear of infecting family increases SP compliance	41	91.1	4	8.9

10	Pressure from seniors promotes SP guideline following	45	100	0	0
11	Equipment not easily accessible (equipment locked)	34	75.6	11	24.4
12	Venipuncture is difficult with gloves	40	88.9	5	11.1
13	Gloves cause skin irritation	45	100	0	0
14	Workload prohibits SP compliance	43	95.6	2	4.4
15	Patient discomfort when SP is used	45	100	0	0
16	Masks/gloves affect personal aesthetics (“looks”)	6	13.3	39	86.7
17	Shortage of nursing personnel limits SP usage	45	100	0	0
18	Children become uneasy when nurses use PPE	40	88.9	5	11.1
19	Lack of PPEs (gloves, masks) exists	45	100	0	0
20	Poor fitting PPE causes SP non-compliance	45	100	0	

The findings indicate that nurses demonstrate a strong awareness and willingness to follow standard precautions, with most respondents acknowledging personal and patient protection, prior exposure risks, family safety concerns, and professional responsibility as key motivating factors. Influences from senior staff and institutional culture also play a major role in encouraging compliance.

However, several operational barriers were identified, including equipment inaccessibility, poor PPE fitting, procedural limitations (such as difficulty performing venipuncture), heavy workload, and shortage of nursing staff. Additionally, patient discomfort—particularly among pediatric patients—was noted as a significant challenge. Aesthetic concerns were minimally influential, suggesting that personal appearance is not a deterrent to compliance.

Overall, while motivation and awareness levels are high, system-level improvements involving staffing, resource availability, and

appropriate PPE design are necessary to enhance adherence to standard precautions further.

#### DISCUSSION

Nurses' adherence to infection control protocols is essential for preventing healthcare-associated infections (HAIs) and ensuring patient safety. Various factors influence their compliance, which can be grouped into “individual, organizational and environmental factors. Nurses with updated knowledge of infection control practices, gained through ongoing education, are more likely to follow protocols. A lack of proper knowledge or outdated information can reduce compliance. Personal beliefs about the importance of infection control, as well as perceived risks to themselves and patients, significantly impact adherence. If nurses view these protocols as unnecessary or time-consuming, they may be less inclined to comply (McCauley et al., 2021).

Powerful administration which prioritizes measures against infection spread & its control will obviously promote a culture of

safety which might have influence on good compliance by all stakeholders. Support from supervisors and management is key. Access to adequate personal protective equipment (PPE), hand hygiene stations, and sterilization materials is essential for adherence. A shortage of these resources can hinder compliance (Salwa et al., 2022).

The design of healthcare facilities, such as the availability of hand washing stations and isolation areas can impact compliance. Patients with challenging behaviors, such as those with cognitive impairments or aggression may complicate efforts to maintain strict infection control. Nurses are influenced by the cultural norms of their workplace. If infection control is ingrained in the organizational culture then compliance tends to be higher. Improving compliance demands a comprehensive approach that includes education, resource provision, strong leadership and fostering a supportive work environment.

Our study comprised of 45 nurses working in different departments of Nishtar Hospital Multan and mean age of these nurses was Mean age of our study cases was  $39.22 \pm 8.73$  years (Range; 25 years to 58 years) while 57.8% (n=26) were aged upto 40 years. Kim et al has Reported 72.1% nurses were aged less than 30 years, incompliance with our results. (Kim & Lee., 2021). Ali et al from Iraq has reported 70 % of the nurses interviewed for infection control measures were aged less than 40 years, similar to our results. (Ali., 2024). Rashmi et al from India has also documented that 91 % of the nurses were less than 40 years of age. (Rashmi & Kondapur., 2017). Esmail et al from Egypt has also reported  $30.9 \pm 4.4$  years mean age of the nursing staff, similar to our results. (Esmail et al., 2019).

Of these 45 nurses included in our study, 42.2 % (n = 19) were diploma holders and 57.8 % (n=26) were graduate nurses. Kim et al has also reported majority of nurses (i.e. 79.3%) were graduate, in compliance with our results. (Kim & Lee., 2021). Ali et al from Iraq has reported 44 % of the nurses interviewed for infection

control measures were diploma holders. (Ali., 2024). Rashmi et al from India has also documented that 58% of the nurses were diploma holder and 42% were graduate and above degree holders. (Rashmi & Kondapur., 2017). Esmail et al from Egypt has also reported 38.4 % were holding nursing diploma, similar to our results. (Esmail et al., 2019).

## **CONCLUSION & RECOMMENDATIONS**

Lack of easy access to the equipment, shortage of nursing staff, multiple responsibilities & workload and poor fitting of the personal protective equipment were the main factors affecting nurses' compliance with infection prevention. Overall, nurses' compliance was good along with good knowledge and practices. Local Governments should take measures to overcome Shortage of nurses to share burden of work will improve further the compliance of nurses which will, in turn ensure patient safety and effective infection prevention program. This will decrease prolonged hospital stays due to nosocomial infections and decrease extra-healthcare expenditures.

## **RECOMMENDATIONS**

The Researcher can certainly provide general recommendations and insights that are commonly found in studies related to factors of Nurses' compliance and Perceived Benefits and Barriers in Health care setting to provide protected care. These recommendations are based on the trends and findings that were prevalent up to the last updated literature about this topic up to 2022.

Based on the research findings, the following recommendations can be made:

1. **Nursing Education and Training:** Healthcare institutions should invest in training and education programs to enhance nurses' skills and knowledge.
2. **Reward system:** To enhance and encourage the safety of health care personals and patients a reward system should be initiated.
3. **Institutional Support:** Healthcare organizations should encourage and

support nurses' involvement in organizing sessions and seminars regarding infection control and recognizing it as a valuable contribution to healthcare improvement.

4. **Interprofessional Collaboration:** Promote collaboration between nurses, other healthcare professionals, and policymakers to ensure a more holistic approach to healthcare policy development.
5. **Mentorship and Advocacy:** Establish mentorship programs and professional networks that empower nurses to advocate for disease prevention and safe health care practices and provide guidance in navigating the policy landscape.
6. Promote nurse leadership and advocacy at the local, regional, and national levels.
7. Create platforms for nurses to share their experiences and success stories in providing best (infection free) care to patients making to inspire others.
8. **Address Time Constraints:** Healthcare providers often face time constraints due to heavy workloads. Integrating and making health education and practices into their routine should be streamlined and efficient, ideally without adding undue burden.

#### **REFERENCES:**

- A,E.O.(2019).Factorsinfluencingtheadheren ceofnursestostandardprecautions. *AmericanJournalof InfectionControl*47(2019)1346–1351,1346-1351.
- Georgios Efstathiou<sup>1\*</sup>, E. P. (2011). Factors influencing nurses' compliance with. *Efstathiou et al. BMC Nursing* 2011, 10.
- SaSaAung\*. (2017). FACTORS AFFECTING THE COMPLIANCE OF MYANMAR NURSES *IN. Jurnal Ners Vol. 12 No. 1 April 2017*, 1-8.
- SaSaAung\*. (2017). FACTORS AFFECTING THE COMPLIANCE OF MYANMAR NURSES *IN. Jurnal Ners Vol. 12 No. 1 April 2017: 1-8, 1-8.*
- Siew Hoon Lim a. (2021). Evaluation of infection prevention and control. *Infection, Disease & Health* (2021) 26, 132e13, 132-138.
- Siew Hoon Lim a. (2021)132-138). Evaluation of infection prevention and control. *Infection, Disease & Health* (2021) 26.
- TuanNorAtiqahTuanAnuar,N. S.(2021).KnowledgeandComplianceRegardi ngStandard *.InternationalJournalofCareScholars*2021,0 4.
- Yang Luo a. (2010). Factors impacting compliance with standard precautions in nursing, Chin. *International Journal of Infectious Diseases* 14 (2010) e1106–e1114, 1106-1114.
- Zeb,S. (2-1- 2021).Factorsassociatedwiththecomplianceo fstandardprecaution;2-1.
- Ali,A.H.,2024.NursesinIraqShowAlarmingl yLowInfectionControlAdherence. *Academia Open*, 9(2), pp.10-21070.
- Chaudhuri , S., Baiyao, p. and Singh, T. G., : Occupational exposure to blood and body fluids among the nursing staff in tertiary hospital of Manipur ,IOSR :Journal of dental and medical sciences; 2015, 14(12):116-119.
- Esmail, R.E., Taha, N.M. and Hafez, G.E., 2019. Factors influencing nurses' compliance with standard precautions regarding occupational exposures to blood and body fluids. *Zagazig Nursing Journal*, 15(2), pp.118-138.
- Geigle saftygroup,: Blood borne pathogens program management Available at <https://www.oshatrain.org> Accessed on 2017June 1.
- Holla, R., Unnikrishnan, B., Ram, P., Thapar, R. and Mithra, P., et al., : Occupational Exposure to Needle Stick Injuries among Health Care Personnel in a Tertiary Care Hospital:A Cross Sectional Study: *Journal of Community Med Health Educ* ;2014 ISSN: 2161-0711;3-13.
- Kim, S.J. and Lee, E.J., 2021. Factors

- influencing emergency department nurses' compliance with standard precautions using multilevel analysis. *International journal of environmental research and public health*, 18(11), p.6149.
- Negrinho, N.B.S., Malaguti-Toffano, S.E., Reis, R.K., Pereira, F.M.V., and Gir, E.,: Factors associated with occupational exposure to biological material among nursing professionals, *Rev Bras Enferm Journal*;2017' 70(1):126-131
- Rashmi, A. and Kundapur, R., 2017. Factors influencing observation of standard precautions among nursing staff in tertiary care setting in Mangalore. *International Journal of Community Medicine and Public Health*, 5(1), pp.377-381.
- Mbaisi, E., Ng'ang'a, Z. , Omolo, J. and Wanzala, P., : Prevalence and factors associated with percutaneous injuries and splash exposures among health-care workers in a provincial hospital, Kenya : pan African medical Journal ;2013 14(2013):1-5.
- De Carli, G. and Abiteboul, D.,: The importance of implementing safe sharps practices in the laboratory setting in Europe :Journal of safe sharps practices in European labs ;2014, 24(1):45 -46.
- Phillips, E.k.,simwale O.J.,Chung, M.j.,parker, G.,perry, J.and Jagger, J.C, :Risk of blood borne pathogen exposure among zambian health care Workers :Journal of Infection and Public Health ; 2012, 5(3)244-249 .
- AHMED, J., MALIK, F., MEMON, Z. A., ARIF, T. B., ALI, A., NASIM, S., AHMAD, J. & KHAN, M. A. 2020. Compliance and knowledge of healthcare workers regarding hand hygiene and use of disinfectants: a study based in Karachi. *Cureus*, 12.
- ALDAKHIL, S., ALKHURAYJI, K., ALBARRAK, S., ALMIHBASH, A., ALDALAN, R., ALSHEHRI, K., ALRUSAINI, S. & ASIRI, A. 2024. Awareness and Approaches Regarding Artificial Intelligence in Dentistry: A Scoping Review. *Cureus*, 16, e51825.
- ALHOFAIAN, A., ALMUNTASHIRI, S. M., BAMUFLEH, M. H., AL-FARAJ, S. A., ALHARBI, S. A., TUNSI, A. & ALAAMRI, M. M. 2023. Nurses' perception and self-confidence of family presence during cardiopulmonary resuscitation in Saudi Arabia. *J Educ Health Promot*, 12, 320.
- ALHUMAID, S., AL MUTAIR, A., AL ALAWI, Z., ALSULIMAN, M., AHMED, G. Y., RABAAN, A. A., AL-TAWFIQ, J. A. & AL-OMARI, A. 2021. Knowledge of infection prevention and control among healthcare workers and factors influencing compliance: a systematic review. *Antimicrobial Resistance & Infection Control*, 10, 86.
- ARMSTRONG-NOVAK, J., JUAN, H. Y., COOPER, K. & BAILEY, P. 2023. Healthcare Personnel Hand Hygiene Compliance: Are We There Yet? *Curr Infect Dis Rep*, 1-7.
- AWAL, Z. A. A. 2025. Factors influencing healthcare workers' adherence to infection prevention and control in Saudi Arabia.
- DAKHILALLAH, H. 2023. Using the Integrative Behavioural Model to explore the factors influencing nurse adherence towards personal protective equipment (PPE).
- LIM, S. H., BOUCHOUCHA, S. L., ALOWENI, F. & SUHARI, N. A. B. 2021. Evaluation of infection prevention and control preparedness in acute care nurses: Factors influencing adherence to standard precautions. *Infection, Disease & Health*, 26, 132-138.
- MAANI-ABUZHARA, Y., WINKLER, M. S., HATTENDORF, J., GALLI, A., TAMAS, A., ABDULKARIM, Z., KOLO, U. M., SHUAIBU, M. A., PETER, M., PROBST-HENSCH, N. & B, N. O. 2025. Baseline Assessment of Handwashing Behavior, Hand Hygiene Conditions, and Wellbeing in Primary Schools in Nigeria. *Int J Public Health*, 70, 1608656.
- MASTROGIANNI, M., KATSOULAS, T., GALANIS, P., KOROMPELI, A. & MYRIANTHEFS, P. 2023. The Impact of Care Bundles on Ventilator-Associated Pneumonia (VAP) Prevention in Adult ICUs: A Systematic Review. *Antibiotics (Basel)*, 12.

- MCCAULEY, L., KIRWAN, M. & MATTHEWS, A. 2021. The factors contributing to missed care and non-compliance in infection prevention and control practices of nurses: a scoping review. *International Journal of Nursing Studies Advances*, 3, 100039.
- MOUAJOU, V., ADAMS, K., DELISLE, G. & QUACH, C. 2022. Hand hygiene compliance in the prevention of hospital-acquired infections: a systematic review. *J Hosp Infect*, 119, 33-48.
- MUSU, M., LAI, A., MEREU, N. M., GALLETTA, M., CAMPAGNA, M., TIDORE, M., PIAZZA, M. F., SPADA, L., MASSIDDA, M. V., COLOMBO, S., MURA, P. & COPPOLA, R. C. 2017. Assessing hand hygiene compliance among healthcare workers in six Intensive Care Units. *J Prev Med Hyg*, 58, E231-e237.
- NASUTION, S. L. R., SUYONO, T., KHU, A., SIMARMATA, H. P. & HAPPY, H. 2023. Health Belief Model Effect on Nurses Hand Hygiene Adherence. *International Journal of Health and Pharmaceutical (IJHP)*, 3, 225-231.
- OJANPERÄ, H., KANSTE, O. I. & SYRJALA, H. 2020. Hand-hygiene compliance by hospital staff and incidence of health-care-associated infections, Finland. *Bull World Health Organ*, 98, 475-483.
- ORGANISATION, W. H. 2025. WHO launched infection prevention and control and healthcare associated infection report.
- PARINDRA, I. K., MENAP, M., KHALIK, A., SASTRAWAN, S., SAIMI, S. & SULAIMAN, L. 2025. Analysis of Factors Influencing Nurse Compliance in Implementing Standard Precautions at Hospital X in West Nusa Tenggara. *Bioscientist: Jurnal Ilmiah Biologi*, 13, 197-217.
- POWERS, D., ARMELLINO, D., DOLANSKY, M. & FITZPATRICK, J. 2016. Factors influencing nurse compliance with Standard Precautions. *American journal of infection control*, 44, 4-7.
- SALWA, M., HAQUE, M. A., ISLAM, S. S., ISLAM, M. T., SULTANA, S., KHAN, M. M. H. & MONIRUZZAMAN, S. 2022. Compliance of healthcare workers with the infection prevention and control guidance in tertiary care hospitals: quantitative findings from an explanatory sequential mixed-methods study in Bangladesh. *BMJ open*, 12, e054837.

