RESEARCH ARTICLE: ASSESSMENT ON BARRIERS TO NEEDLE STICK PROTOCOL COMPLIANCE IN SULU SANITARIUM AND GENERAL HOSPITAL: IT'S EFFECT ON INJURY RATES

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*ABSTRACT***.** This study assessed the barriers to needle stick protocol compliance in Sulu Sanitarium and general hospital for the Fiscal Year 2024. With 100 samples taken through non-probability sampling method via purposive sampling, and with the use of weighted mean, standard deviation, t-test for independent samples, One-way ANOVA, and a linear regression analysis, this study reveals the following findings: 1) Of the 100 respondents, mostly are female, married within the age range of 31 years old and above and are more experienced nurses; 2) The barriers to compliance noted were, lack of awareness about safety guidelines and the insufficient availability of sharps containers, fear of social stigma or potential discrimination; 3) Overall, there was an adequate support system provided by the hospital administrators in terms of post-injury care, including access to prophylaxis, free laboratory tests, and well-established protocols for managing needle stick injuries; 4) Generally, age and gender showed statistical significant difference in the level of compliance towards needle stick injury protocols in term of protocol knowledge while civil status and length of service did not show any significant difference and 5) The linear regression model reveals a statistically significant and positive relationship between barriers and level of compliance. These findings suggest that perceived barriers significantly impact compliance with safety protocols. As the perceived barriers increase, the level of compliance with safety measures also tends to rise. It is suggested that exploring the barriers to compliance will help in increasing compliance levels towards preventing needle stick injuries to nurses. Timely training and reorientation in these is seen as crucial for all nursing and other health care professionals.

KEYWORDS: Barriers, Compliance, Protocol, Safety, Training and Reorientation

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1. Introduction

Needlestick injuries (NSIs) are one of the many occupational hazards to which doctors, nurses, and other healthcare workers are increasingly exposed. According to the World Health Organization (WHO), NSIs are one of the most dangerous occupational risks for healthcare workers (HCWs) worldwide, with over 2 million occupational exposures among 35 million HCWs per year (WHO, 2005). An unintentional skin-penetrating stab wound caused by a hollow-bore

needle (or other sharp object) containing blood or bodily fluid from another person is known as a needle stick injury (NSI). A skin-penetrating stab wound brought on by sharp objects or mishaps in a medical setting is known as a sharps injury (SI). (CDC, 2008)

The first documented instance of HIV infection from a needlestick (Anonymous, 1984) raised awareness and concerns about the dangers that sharp injuries represent to healthcare professionals. It is now well established that healthcare workers who sustain percutaneous injuries from needlesticks and other sharp objects run a serious risk of contracting bloodborne infections like HIV, HBV, and HCV. An estimated 66 000 HBV, 16 000 HCV, and 200–5000 HIV infections among healthcare workers are thought to result from sharp injuries annually (Prüss-Üstün, Rapiti & Hutin, 2003). The attributable fractions for percutaneous occupational exposure to HIV, HBV, and HCV are 4.4%, 37%, and 39% for healthcare professionals globally. Serious repercussions from these bloodborne diseases include mortality, disability, and chronic illness (WHO, 2005).

The National Institute of Occupational Safety and Health (NIOSH) in the United States states that needles used to connect components of IV administration systems, hypodermic needles, blood collection needles, and intravenous (IV) stylets are the main causes of NSIs. If injured, healthcare workers at risk for NSIs are highly susceptible to serious infections from blood-borne pathogens such HIV/AIDS, hepatitis B virus (HBV), and hepatitis C virus (HCV). WHO claims that NSIs are to blame for the global prevalence of HIV/AIDS (4.4%), HBV (36.7%), and HCV (39%). among HCWs for a number of causes, including exhaustion, negligence, stress, hurriedness, and abrupt patient movements.

The workplace environment, specialization, and job conditions all affect the occurrence of NSIs. According to Kebede and Gerensea, the majority of NSIs happened in the medical and surgical departments, with an incidence of 48.8% among 252 nurses in Ethiopia (5). According to Makary et al., 83% of 699 surgical residents in the US had NSIs, with the majority of these injuries occurring in the operating room (6). Evidence indicates that despite the high prevalence of NSIs among healthcare workers, these workers frequently fail to report their injuries or are not followed up with for testing and treatment; this could be because they lack the time or don't believe in NSI-transmitted infections, among other reasons.

Given the significance of NSIs and their ignorance, health care workers must be provided with correct and thorough information on the prevalence, management, and prevention of NSIs. Despite the fact that NSI incidence has been the subject of numerous exploratory research, no comprehensive analysis of all aspects and variables (cause, procedure, device, and location) associated with the worldwide incidence of NSIs has been carried out. The study's findings give hospitals, other medical facilities, and healthcare workers important information on how to lower the number of NSIs, create a safer environment for clinical work, and ultimately raise the standard of care.

2. Research Questions

This study aimed to explore the barriers to needle stick protocol compliance in public hospitals and its effect on the injury rates. Specifically, it’s sought to answer the following questions:

1. What is the socio demographic profile of nurses assigned in public hospital in terms of:
    1.1 Age;
    1.2 Gender;
    1.3 Civil Status; and
    1.4Length of Service?

2. What are the barriers to compliance with needle stick injury protocols?
    2.1 Perceived Barriers;
    2.2 Behavioral Factors; and
    2.3 Support Systems?
3. What is the current level of compliance with needle stick injury protocols among health workers assigned in public hospital in the areas of:
    3.1 Safety Procedures;
    3.2 Protocol of Knowledge; and
    3.3 Training Participations?
4. Is the significant difference in the level of compliance with needle stick injury protocols among health workers in public hospital when data are grouped in terms of:
    4.1 Age;
    4.2 Gender;
    4.3 Civil Status; and
    4.4 Length of Service?
5. Does the barrier to compliance predict the level of compliance with needle stick injury protocols among health workers in public hospitals?

3. Literature

Every day, more than 20 million committed health care professionals (HCP) put themselves in danger from mechanical, chemical, and biological risks. According to estimates from the World Health Organization, every year, around three million healthcare professionals are exposed to bodily fluids and blood from needlestick or sharp accidents. Up to 2001, there were 57 recorded cases of HIV seroconversion among healthcare workers as a result of exposure to blood and bodily fluids. Every year, 400 workers contract hepatitis B and 2,000 workers contract hepatitis C. More than 20 other infectious agent types have been shown to spread by needle sticks. By using safe needle devices, almost 80% of needle stick injuries can be avoided. Many nations have created laws to safeguard HCPs by enticing companies to apply best practices in order to avoid these exposures. For the post-exposure therapy of needlestick injuries or exposure to blood and bodily fluids, numerous methods have been put forth. Early post-exposure management commencement is essential to a protocol's effectiveness (Houben et al., 2022). HIV prophylaxis must be started as soon as possible, ideally within the first few hours, and has the shortest treatment window. During the first seven days, hepatitis B immunoglobulin (HBIg) could be administered.By proactively implementing these suggestions, vaccination all healthcare professionals against Hepatitis B (HBV), and integrating enhanced engineering controls into an all-encompassing needle stick injury prevention program, healthcare institutions can create policies and procedures to decrease needle stick injuries. After outlining the problem's scale, nature, and historical context, we assess the current state of preventive, clinical management, and business obligations.

Health care personnel (HCP) who handle blood and bodily fluids on a global scale face the terrifying risk of needlestick injuries. The cost is incalculable on a personal and societal level and is enormous for the country as well as the employers. The historical context will be covered in this review, which will then go over the scope and nature of the issue, including prevention, business responsibility, and legal concerns (Falana, 2024). There will be a brief discussion of post-exposure management in general and in relation to HIV and hepatitis infections, along with its applicability to practice in developing nations.

This crucial aspect of healthcare delivery has been a cause of occupational harm for healthcare professionals (HCPs) since the first needle was inserted in the middle of the 1840s. With the advent of disposable syringes in the early 1960s, the strain was somewhat lessened because there was no longer a need to sterilize and reuse the same syringe. A medical technician at the University of Wisconsin Hospital in Madison, Wisconsin, seroconverted to hepatitis B in 1978 following an unintentional needlestick injury that exposed them to the virus at work. Due to this sentinel occurrence, Dr. Dennis Maki and Ms. Rita McCormick, RN, CIC, conducted ground-breaking research that made the medical community aware of the dangers of needle stick injuries.Healthcare professionals are now more aware of blood-borne infections caused by tainted needles and sharps thanks to this study. Maki and McCormick cautioned HCPs against recapping needles in their 1981 report, which found that recapping attempts were the primary source of needle stick injuries. Even though the medical community is aware of the issue, unintentional needle stick injuries are a common way for HBV and other bloodborne infections to spread. Exposure to blood and bodily fluids and the necessity of needle safety devices were not given much thought until the lethal threat of HIV/AIDS emerged in the early 1980s.

The "Healthcare Worker Needlestick Prevention Act" was written in 2013 by the late Senator Miriam Defensor-Santiago of the Philippines. It mandated that the secretaries of labor and health implement rules to reduce or eliminate the high risk of needlestick injuries among healthcare workers (Senate Bill 931, 16th Congress of the Republic of the Philippines). Such actions, however, can only be beneficial if healthcare professionals themselves are made aware of the significance of preventing and reporting needlestick injuries. Therefore, the purpose of this paper was to develop a novel method for evaluating the expertise and practice of healthcare professionals at DLSMC.

Every workplace must firmly take precautionary and safety measures into account in order to reduce unfortunate accidents and guarantee the security of healthcare professionals. Hospital institutions would find it easier to reevaluate the effectiveness of their programs or efforts to ensure staff nurse safety if they implemented regulations or guidelines for preventing sharp injuries. Nurses' top concern is workplace safety, especially with regard to sharp injuries.1 Well-executed policies may give hospitals a new outlook on change and a chance to better inform and train their staff nurses on how to prevent, document, and report sharp injuries. Data collection on sharps injuries and the identification of staff development, program enhancement, and training efforts are clear ways to assess the effectiveness of institutions' current sharps injury prevention programs. Numerous studies have shown that healthcare businesses that link their safety culture to employee compliance and safe work practices would eventually reduce injuries due to sharp objects and exposure to blood and other bodily fluids. Because policies and procedures have been incorporated into management and programs, organizations with strong safety cultures consistently report fewer sharp injuries than those with weak safety cultures. Accordingly, compliance and commitment to safety guidelines depend heavily on education and training, as well as the availability of resources.

Sharp injuries that occur in hospital settings are one of the major global safety problems. About half of the estimated 600,000 to one million needlestick injuries that occur worldwide each year go unreported, according to a report by the Centers for Disease Control and Prevention (CDC).2 The report also emphasized that the vast majority of these injuries involve healthcare workers who work at the patient's bedside. In the Philippines, however, 4,004 healthcare professionals—including nurses, other patient-care providers, laboratory employees, and support staff—were reported to have suffered needle stick injuries in 2004.3.

The findings are supported by the fact that nurses were the occupational group most frequently injured by needles and other sharp objects. According to the CDC and American Nurses Association, nurses experienced the highest number of percutaneous injuries from sharp objects and needles of any health workers surveyed.2,4,5 Despite the existence of guidelines for preventing sharps injuries, it is crucial to ascertain whether nurses are following these guidelines and what factors influence their adherence to safety protocols.Given the rising number of sharps-related injuries among healthcare workers despite hospital sharps injury prevention guidelines, this study sought to ascertain how well staff nurses adhere to policies and procedures for preventing sharps injuries as well as the factors that influenced their compliance.

4. Methodology

The current chapter outlines the methodology employed in the research. It covers the research design, study participants, sampling method, and research tools. Additionally, it discusses the statistical techniques that will be utilized in data analysis.

Research Design

In order to collect and evaluate data and information about the obstacles to needle stick injury procedure and compliance among staff nurses at Sulu Sanitarium and General Hospital, this study employed a descriptive research design. This specialized strategy involves the observation and collection of data related to a certain topic without attempting to infer causal relationships. Offering a comprehensive and accurate representation of the population or phenomenon being studied, as well as outlining the relationships, patterns, and trends that are evident in the collected data, is the main goal of descriptive research. Through systematic observation and data collecting, descriptive research makes it easier to gain thorough understanding about a given topic. This approach enables researchers to get a more profound comprehension of certain issues and offers significant insights that can guide subsequent research.

The study was conducted under cross sectional design. Cross Sectional Design is a type of observation study. In a cross-sectional study, the researcher measured the outcome and the exposure in the study participants at the time.

Respondents of the Study

The respondent was composed of 50-100 staff nurses of Sulu Sanitarium and General Hospital that met the inclusion criteria. Since the survey questions required response based on the barriers to compliance with needlestick protocol and current level of compliance to protocol on needle stick injury.

Research Instrument

The advantage of the questionnaire as a tool was that it facilitates a higher participant story rate. Further reason for selecting the questionnaire was that it made provision for the participants to feel a greater sense of anonymity as well as that it will allow limited subjectivity on the part of participants.

Permission to use this questionnaire was obtained from the original author. The researcher had provided specific, clear, indicators for each dimension/factor in participation. In addition, the researcher instruments collected were the information relevant to socio-demographics, current level of compliance and barriers to compliance on needle stick injury. After the data gathering, the researcher tallied the results and handed them to the statistician for data analysis.

The questionnaire was divided into 3 main parts. These parts aimed to obtain information and insights on the Assessment on Barriers to Needle Stick Protocol Compliance in Sulu Sanitarium and General Hospital: Its effect on injury rates. Part I of the questionnaire dealt with the socio demographic profile of the respondent. Part II dealt with barriers to compliance with

needle stick protocol and in terms of perceived barriers, behavioral factors and support system, while part III dealt with compliance level with needle stick protocol in terms of safety procedure, protocol of knowledge and training participation.

By using a 5-Likert Scale, the respondent was asked to answer part I-III of the questionnaire. An instrument that is frequently used to assess people's ideas and viewpoints globally 5 points Likert's scale. There were five choices for responses to the survey questions: strongly agree, agree, partially agree, disagree, strongly agree and rarely, sometimes, often, always.

Data Gathering Procedure

In the process of gathering data, an approval letter from the Dean of Graduate Studies and research adviser was secured to seek permission in launching the study. The same letter was given to the Hospital Administration of Sulu Sanitarium and General Hospital, and respondent were prepared to sought permission to allow the researcher to the study entitled "Assessment on Barriers to Needle Stick Injury Protocol Compliance in Sulu Sanitarium and General Hospital: Its effect on injury rates".

The survey questionnaire was distributed to the staff nurses in different areas or units. The respondents were advised to answer the questionnaire honestly and read the item carefully before choosing an answer. The researcher personally administered and retrieved the research instrument from the respondent. All given data had been accurately tabulated, processed and statistically treated following data gathering procedure.

Data Analysis

With a sample taken through non probability sampling method and with the use of weighted mean, standard deviation, deviation, t-test for independent samples, one-way ANOVA, and Pearson's r.age, gender, civil status and length of service, the researcher used a descriptive statistic of frequency counts and percentage in order to measure the demographic profile of the respondent. It simply counts the number of each variable occurring (Korb, 2013). The score from the test was expressed as mean percentage and the qualitative data appear as the weighted mean and standard deviation. The mean is equal to the sum of all values divided by the number of participants and standard deviation summarized the average amount of deviation from the mean (Polit, Denise F., Phd and Beck, Cheryll T., DNSC, 2010) and the average amount of deviation of value from the mean (Polit, Denise F., Phd and Beck, Cheryll T., DNSC, 2010).

5. Results

Question 1. What is the socio demographic profile of nurses assigned in public hospitals in terms of 1.1 Age, 1.2 Gender, 1.3 Civil Status and 1.4 Length of Service?

1.1 According to Age

Table 1.1 shows the socio demographic profile of nurses assigned in public hospitals in terms of age**.** The data revealed that 58 (58%) of nurses assigned at the public hospital are aged 31 years and above, 23 (23% are within the 21-25-year-old, while 19 (19%) are in the 26-30-year-old category.

Table 1.1: Socio-Demographic Profile of Nurses Assigned in Public Hospital in Terms of Age

Age Range	Frequency	Percent
21-25 years old	23	23.0%
26-30 years old	19	19.0%
31 years old and above	58	58.0%
Total	100	100.0%

1.2 According to Gender

Table 1.2 shows the Socio-Demographic Profile of Nurses Assigned in Public Hospital in Terms of Gender. It can be gleaned from this table that there are 89 (89%) females and only 11 (11%) males who participated in this study. The gender distribution among nurses at the public hospital shows a significant majority of female nurses, This reflects the broader trend in the nursing profession, where women typically outnumber men. The high percentage of female nurses suggests that the nursing profession is predominantly female at this hospital.

Table 1.2 Socio-Demographic Profile of Nurses Assigned in Public Hospital in Terms of Gender

Gender	Frequency	Percent
Male	11	11.0
Female	89	89.0
Total	100	100.0

1.3 In terms of Civil Status

Table 1.3 shows the findings on the socio-demographic profile of nurses assigned in public hospitals in terms of civil status. The data revealed that a majority of nurses are married (57%), followed by single (39%), and a small proportion of divorced (3%) and widowed (1%).

Table 1.3 Socio-Demographic Profile of Nurses Assigned in Public Hospital in Terms of Civil Status.

Civil status	Frequency	Percent
Single	39	39.0
Married	57	57.0
Divorced	3	3.0
Widowed	1	1.0
Total	100	100.0

1.4 In terms of Length of Service

Table 1.3 presents the socio-demographic profile of nurses in a public hospital based on their length of service. The findings show, the majority of nurses (39%) have been working for 2-3 years, followed by those with 6 or more years (24%), 3-5 years (23%), and less than 1 year (14%). This distribution indicates that most nurses have moderate experience, while a smaller proportion are new or highly experienced.

Table 1.4 Socio-demographic profile of nurses assigned in public hospitals in terms of Length of Service.

Length of Service	Frequency	Percent
Less Than 1 Yr	14	14.0
2-3 Yrs	39	39.0
3-5 Yrs	23	23.0
6 Yrs and Above	24	24.0
Total	100	100.0

Question 2. What are the barriers to compliance with needle stick injury protocols in terms of 2.1 perceived barriers, 2.2 behavioral factors, and 2.3 support systems?

2.1 In terms of Perceived Barriers

Table 2.1 outlines the perceived barriers to compliance with needle stick injury protocols in terms of perceived barriers. The overall mean score for the respondents' perceptions was 3.8580, with a standard deviation of 0.56370, indicating an agreement with the statements regarding the barriers to compliance. Specifically, the highest mean score was for item number 1, “I’m not aware of my workplace guidelines for needle stick injury,” and item number 2, “There’s not enough sharps containers in our unit,” both of which were rated as *strongly in agreement.* This suggests that lack of awareness about the guidelines and insufficient availability of sharps containers are

significant barriers to compliance with protocols. On the other hand, the lowest mean score was for item number 4, "Patient care is more important than the safety of healthcare workers," which was rated as *partially agree.* This reflects a perception among some respondents that patient care may sometimes take precedence over safety protocols for healthcare workers which could contribute to non-compliance with safety protocols. In addition, respondents also showed partial agreement with item number 5, "The workplace doesn't have enough screen markers for needle stick injury," and agreement with item number 3, "I am concerned about getting needle stick injuries because sharps disposal containers are not changed often enough." These responses indicate concerns regarding the availability of safety markers and the frequency of disposal container changes and may reflect a need for improvements in workplace safety practices.

Table 2.1 Barriers to compliance with needle stick injury protocols in terms of Perceived barriers

	Perceived Barriers	N	Mean	Std. Deviation	Rating
1.	I'm not aware of my workplace guidelines to needle stick injury	100	4.8000	.51247	Strongly agree
2.	There's not enough sharps container in our unit	100	4.8300	.42770	Strongly agree
3.	I am concerned about getting needle stick injury because sharps disposal container are not changed often enough	100	3.9700	1.16736	Agree
4.	Patients care are more important than safety of health care workers	100	2.5400	1.33651	Partially agree
5.	My workplace don't have enough screen markers for needle stick injury	100	3.2000	1.02494	Partially agree
		100	3.8680	.56370	Agree

Legend Rating-Scale, 1.00-1.49=Strongly Disagree,;1.50-2.49=Disagree,;2.50-3.49=Partially agree;3.50-4.49=Agree;4.50-5.00=Strongly agree.

2.2 In terms of Behavioral Factors

Table 2.2 outlines the barriers to compliance with needle stick injury protocols in terms of behavioral factors with an overall mean score of 3.9220 and a standard deviation of 0.63430. The data reveals that the highest mean score was for item number 4, "I am afraid of stigma and discrimination," which was rated as strongly in agreement. This suggests that many healthcare workers fear the social stigma or potential discrimination that may arise from reporting needlestick injuries. On the other hand, the lowest mean score was for item number 2, "I consider it as a minor injury," which was rated as partially agree, indicating that some respondents downplay the severity of needle stick injuries, potentially leading to underreporting. Additionally, respondents showed partial agreement with item number 1, "I always recap needle after use," suggesting that some workers engage in unsafe practices related to needle disposal. There was also agreement with item number 3, "I'm afraid of my blood results after a needle stick injury," reflecting anxiety over the potential health risks following such incidents. Item number 5, "I have lack of time to report on needle stick injury," indicates that time constraints may be a significant barrier to proper reporting and follow-up procedures.

Table 2.2 Barriers to compliance with needle stick injury protocols in terms of behavioral factors.

	Behavioral Factors	N	Mean	Std. Deviation	Rating
1.	I always recap needle after used	100	3.4100	1.20684	Partially agree
2.	I consider it as a minor injury.	100	3.0100	1.34461	Partially agree
3.	I'm afraid of my blood results after needle stick injury acquired.	100	4.3000	.94815	Agree
4.	I am afraid of stigma and discrimination	100	4.5800	.69892	Strongly agree
5.	I have a lack of time to report on needle stick injury.	100	4.3100	.86100	Agree
		100	3.9220	.63430	Agree

Legend Rating-Scale, 1.00-1.49=Strongly Disagree,;1.50-2.49=Disagree,;2.50-3.49=Partially agree;3.50-4.49=Agree;4.50-5.00=Strongly agree.

2.3 In terms of Support Systems

Table 2.3 outlines the barriers to compliance with needle stick injury protocols in terms of support systems, with an overall mean score of 4.2120 and a standard deviation of 0.60357. The highest mean score was for item number 1, "Our hospital administrators give advice and inputs on needle stick injury prevention," which was rated as agree. This suggests that healthcare workers feel supported by hospital administrators in terms of guidance and advice related to needle stick injury prevention. On the other hand, the lowest mean score was for item number 3, "There are adequate safety boxes in the unit," which was also rated as agree, indicating that while safety boxes are available, respondents feel that there may still be a need for improvement in their availability or accessibility.Respondents also agreed with items number 2, "I get enough prophylaxis after needle stick injury," item number 4, "The laboratory test for needle stick injury is available at our hospital for free," and item number 5, "There is a standard operating procedure/protocol for those who have been injured by needle stick." These responses indicate that, overall, respondents felt that the hospital provides adequate support in terms of post-injury care, including access to prophylaxis, free laboratory tests, and well-established protocols for managing needle stick injuries.

Table 2.3 Barriers to compliance with needle stick injury protocols in terms of support systems

	Support systems	N	Mean	Std. Deviation	Rating
1.	Our hospital administrators give advice and inputs on needle stick injury prevention.	100	4.4400	.64071	Agree
2.	I get enough prophylaxis after needle stick injury.	100	4.2100	.80773	Agree
3.	There are adequate safety boxes in the unit.	100	3.8400	.92899	Agree
4.	The laboratory test for needle stick injury is available at our hospital for free.	100	4.3100	.78746	Agree
5.	There is a standard operating procedure/protocol for those who have been injured by needle sticks.	100	4.2600	.79924	Agree
		100	4.2120	.60357	Agree

Legend Rating-Scale, 1.00-1.49=Strongly Disagree,;1.50-2.49=Disagree;2.50-3.49=Partially agree;3.50-4.49=Agree;4.50-5.00=Strongly agree.

Question 3. What is the current level of compliance with needle stick injury protocols among health workers assigned in public hospitals in the areas of 3.1 safety procedures, 3.2 protocol of knowledge, and 3.3 training participation?

3.1 In terms of Safety Procedures

Table 3.1 outlines the current level of compliance with needle stick injury protocols in terms of safety procedures, with an overall mean score of 4.3560 and a standard deviation of 0.49120, indicating that compliance is generally high. The highest mean score was for item number 3, "I safely disposed of used needles in sharps containers," which was rated as always,

demonstrating very high compliance with this important safety practice. This suggests that healthcare workers are consistently following proper disposal procedures, significantly reducing the risk of needle stick injuries. The lowest mean score was for item number 1, "I practice 'Do not Recap' procedure after every injection," which was rated as often, indicating high compliance, but also showing that there may still be occasional lapses in adhering to this critical safety practice. This highlights a potential area where further reinforcement is needed to ensure that recapping is avoided entirely.

Moreover, respondents also rated item number 2, "I used gloves during the injection procedure," suggesting good compliance, but room for improvement to ensure gloves are always used. In addition, respondents rated always for item number 4, "I separate the needle from the syringe after use," and item number 5, "I fill an incident report after needle stick injury," both of which reflect very high compliance with these essential practices for maintaining safety and proper documentation.

Table 3.1 Current level compliance with needle stick injury protocols in terms of safety procedures

Safety procedures	**N**	**Mean**	**Std. Deviation**	**Rating**
1. I practice the "Do not Recap" procedure after every injection.	100	3.7700	1.03333	Often
2. I used gloves during the injection procedure.	100	4.0200	.89871	Often
3. I safely dispose used needles in sharps containers	100	4.7500	.60927	Always
4. I separate the needle from the syringe after use	100	4.5400	1.02907	Always
5. I fill incident report after needle stick injury	100	4.7000	.50252	Always
	100	4.3560	.49120	Often

Legend Rating-Scale 1.00-1.49=Never;1.50-2.49=Rarely;2.50-3.49=Sometimes;3.50-4.49=Often;4.50-5.00=Always.

3.2 In terms of Protocol of Knowledge

Table 3.2 outlines the current level of compliance with needle stick injury protocols in terms of protocol knowledge, with an overall mean score of 4.5300 and a standard deviation of 0.49431, indicating very high compliance. The highest mean score was for item number 3, "I know the needle stick injury guidelines of my workplace," which was rated as always, demonstrating very high compliance with awareness of workplace guidelines related to needle stick injuries. This suggests that healthcare workers are well-informed about the protocols and guidelines in place at their facilities. The lowest mean score was for item number 5, "I properly dispose of sharp containers when it is at ¾ of its capacity," rated as often, indicating that while healthcare workers generally comply with this important protocol, there may be occasional lapses in ensuring containers are disposed of at the appropriate time. This shows that there is still some room for improvement in ensuring timely and proper disposal of sharps containers.In addition, respondents also rated often for item number 1, "I know the standard precaution of needle stick injury," indicating good, though not perfect, compliance in understanding standard precautions. Item number 2, "I immediately report needle stick injury to the infection control nurse," and item number 4, "I make sure that sharp boxes are properly labeled and secured before disposal," were

both rated as always, reflecting very high compliance with these protocols related to reporting and secure disposal practices.

Table 3.2 Current level of compliance with needle stick injury protocols in terms of protocol knowledge,

	Protocol Knowledge	N	Mean	Std. Deviation	Rating
1.	I know the standard precaution of needle stick injury	100	4.4800	.71746	Often
2.	I immediately report needle stick injury to the infection control nurse	100	4.5900	.60461	Always
3.	I know the needle stick injury guidelines of my workplace	100	4.6500	.53889	Always
4.	I make sure that sharp boxes are properly labelled and secured before disposal	100	4.6000	.56854	Always
5.	I properly dispose the sharp containers when it is at ¾ of its capacity	100	4.3300	.71145	Often
		100	4.5300	.49431	Always

Legend Rating-Scale 1.00-1.49=Never;1.50-2.49=Rarely;2.50-3.49=Sometimes;3.50-4.49=Often;4.50-5.00=Always.

3.3 In terms of Training Participations

Table 3.3 outlines the current level of compliance with needle stick injury protocols in terms of training participation, with an overall mean score of 3.8520 and a standard deviation of 0.79981, indicating often or high compliance. The highest mean score was for item number 3, "My hospital administrators conduct regular assessment training needs on needlestick prevention and safety procedures," which was rated as often, reflecting that healthcare workers are regularly assessed for training needs related to needle stick injury prevention. This indicates a high level of compliance and awareness in terms of institutional support for continuous education on safety procedures. The lowest mean score was for item number 5, "I facilitate in training and workshop sessions," rated as sometimes, which suggests moderate compliance. This indicates that while some healthcare workers are involved in facilitating training sessions, not everyone may be consistently contributing in this area, and there may be room for more active participation in training activities.

Respondents also rated often for item number 1, "I attend regular sharps safety needlestick prevention training," item number 2, "I mentor young nurses about needle stick injury prevention and protocols," and item number 4, "My hospital administrators conduct regular sessions on needlestick prevention and safety procedures." These ratings suggest that healthcare workers generally engage in regular training and mentoring activities, and that hospital administrators provide ongoing sessions to promote adherence to needle stick injury prevention protocols.

Table 3.3 Current level of compliance with needle stick injury protocols in terms of training participation,

	Training Participation	N	Mean	Std. Deviation	Rating
1.	I attend regular sharps safety needlestick prevention training.	100	3.5300	1.03918	Often
2.	I mentor young nurses about needle stick injury prevention and protocols.	100	4.0800	.93937	Often
3.	My hospital administrators conduct regular assessment training needs on needlestick prevention and safety procedures.	100	4.3600	.73195	Often
4.	My hospital administrators conduct regular sessions on needlestick prevention and safety procedures.	100	3.8600	1.05428	Often

5. I facilitate training and workshop sessions.	100	3.4300	1.36519	Sometimes
	100	3.8520	.79981	Often

Legend Rating-Scale 1.00-1.49=Never;1.50-2.49=Rarely;2.50-3.49=Sometimes;3.50-4.49=Often;4.50-5.00=Always

Question 4. Is there a significant difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of 4.1 age, 4.2 gender, 4.3 civil status, 4.4 length of service?

4.1 According to Age

Table 4.1 shows the significant difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of age. The result of the ANOVA test, based on age, revealed differing results across the three variables: Safety Procedures, Protocol Knowledge, and Training Procedures.

For Safety Procedures, the F-ratio of 2.298 and a p-value of 0.106 indicate that there is no significant difference between the age groups regarding their perceptions of safety procedures. This means that, regardless of age, respondents do not significantly differ in their views or practices related to safety procedures.

In Protocol Knowledge, the analysis showed a significant difference (p = 0.004). The F-ratio of 5.724 suggests that the level of protocol knowledge differs across the age groups. This implies that age may influence how well individuals understand the guidelines for needle stick injury prevention, and further investigation could reveal specific age-related factors that contribute to the variance in protocol knowledge.

Finally, for Training Procedures, the F-ratio of 0.033 and the p-value of 0.967 indicate no significant difference between age groups in terms of their experience with training procedures. This suggests that the training programs are equally effective across different age groups, and there is no evidence to suggest that age influences the perception or effectiveness of training in this area.

Table 4.1 Difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of age.

SOURCES OF VARIATION		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**	**Description**
Safety procedures	Between Groups	1.631	2	.816	2.298	.106	Not Significant
	Within Groups	34.434	97	.355			
	Total	36.066	99				
Protocol knowledge	Between Groups	2.554	2	1.277	5.724	.004	Significant
	Within Groups	21.636	97	.223			
	Total	24.190	99				
Training Procedures	Between Groups	.043	2	.022	.033	.967	Not Significant
	Within Groups	63.286	97	.652			
	Total	63.330	99				

*Significant at 0.05 alpha level.

4.2 According to Gender

Table 4.2 discusses the significant difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of

gender. The results of the independent samples t-test reveal distinct findings across the three areas of Safety Procedures, Protocol Knowledge, and Training Procedures based on gender.

First, in Safety Procedures, there were no significant differences between males and females ($p = 0.689$), indicating that both genders have similar views or experiences regarding the safety protocols in place at their workplace. Similarly, in Training Procedures, no significant difference was observed ($p = 0.976$), suggesting that both genders perceive training procedures similarly, and there is no gender-based discrepancy in training experiences. However, a significant difference was found in Protocol Knowledge ($p = 0.005$). Males had a mean score of 4.4364, while females had a slightly higher mean score of 4.5416. This suggests that females may have a higher level of knowledge about workplace protocols compared to males, which could be attributed to greater exposure to the material or differences in how the information is retained or disseminated.

Table 4.2 Difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of gender.

SOURCES OF VARIATION	gender	Mean	Std. Deviation	Mean Difference	t	Sig.	Description
Safety Procedures	Male	4.1273	.61496	-.09520	.161	.689	Not Significant
	gender	4.2225	.60486				
Protocol Knowledge	Male	4.4364	.78393	-.10521	8.188	.005	Significant
	gender	4.5416	.45146				
Training Procedures	Male	3.8364	.78393	-.01757	.001	.976	Not Significant
	gender	3.8539	.80609				

*Significant at 0.05 alpha level.

4.3 According to Civil Status

Table 4.3 discusses the significant difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of civil status. The results of ANOVA test with needle stick injury indicates that civil status does not significantly impact compliance with needle stick injury protocols across three key areas.

For Safety Procedures, the F-ratio of 0.751 and p-value of 0.474 suggest similar adherence to safety protocols across civil status groups. Protocol Knowledge also shows no significant differences, with an F-ratio of 0.893 and p-value of 0.054, indicating comparable levels of protocol knowledge across groups. Lastly, for Training Procedures, the F-ratio of 1.784 and p-value of 0.173 indicate no significant effect of civil status on training perceptions or experiences.

Therefore, the hypothesis which states “There is no significant difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of civil status” is accepted.

Table 4.3 Difference in the level of compliance with needle stick injury protocols among health workers in public hospital when data are grouped in terms of civil status

SOURCES OF VARIATION		Sum of Squares	Df	Mean Square	F	Sig.	Description
Safety Procedures	Between Groups	.850	2	.425	.751	.474	Not Significant
	Within Groups	52.858	97	.566			
	Total	55.708	99				
Protocol Knowledge	Between Groups	7.342	2	3.671	.893	.054	Not Significant
	Within Groups	89.151	97	.919			
	Total	96.493	99				
Training Procedures	Between Groups	3.079	2	1.540	1.784	.173	Not Significant
	Within Groups	83.708	97	.863			
	Total	86.788	99				

*Significant at 0.05 alpha level.

4.4 According to Length of Service

Tabel 4.4 discusses the significant difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of length of service. The results of the analysis of variance (ANOVA) revealed that there were no statistically significant differences between the groups in terms of safety procedures, protocol knowledge, and training procedures. Therefore, the null hypothesis, which posits no differences among the groups, cannot be rejected.

Table 4.4 Difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of length of service.

SOURCES OF VARIATION		Sum of Squares	Df	Mean Square	F	Sig.	Description
Safety Procedures	Between Groups	.082	3	.027	.073	.974	Not Significant
	Within Groups	35.984	96	.375			
	Total	36.066	99				
Protocol Knowledge	Between Groups	1.146	3	.382	1.591	.197	Not Significant
	Within Groups	23.044	96	.240			
	Total	24.190	99				
Training Procedures	Between Groups	4.188	3	1.396	2.266	.086	Not Significant
	Within Groups	59.141	96	.616			
	Total	63.330	99				

*Significant at 0.05 alpha level.

Question 5. Does the barrier to compliance predict the level of compliance with needle stick injury protocols among health workers in public hospitals?

Table 5 shows the results of the regression analysis examining the predictive power between perceived barriers (BARRIERS) and compliance (COMPLIANCE). The model reveals a statistically significant and positive relationship between perceived barriers and compliance, with an unstandardized coefficient of 0.765 and a standardized coefficient (Beta) of 0.684. This suggests that for each unit increase in the perceived barriers, there is a predicted increase of 0.765 units in compliance. The t-value for the BARRIERS variable is 9.278, and the p-value is 0.000, indicating that the relationship is highly significant ($p < 0.05$).

Additionally, the constant (intercept) term has a value of 1.135, which is also statistically significant, with a t-value of 3.419 and a p-value of 0.001. This shows that when the perceived barriers are zero, the predicted compliance score is 1.135, and this intercept is significantly different from zero.

Table 5 Barriers and Level of Compliance Linear Regression Model

Model		Coefficients			T	Sig.
		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
1	(Constant)	1.135	.332		**3.419**	**.001**
	BARRIERS	.765	.083	.684	9.278	.000

a. Dependent Variable: COMPLIANCE

6. Discussion

Question 1. Question 1. What is the socio demographic profile of nurses assigned in public hospitals in terms of 1.1 Age, 1.2 Gender, 1.3 Civil Status and 1.4 Length of Service?

1.1 According to Age

According to this distribution, experienced nurses make up the majority of the nursing staff at this institution, although younger professionals also make up a sizable part. The hospital probably benefits from the extensive expertise of its nursing staff, which could lead to better patient care and mentoring for newer nurses, as evidenced by the larger percentage of senior nurses. This concept is in line with the research of (Verdeflor, R.N., 2024). The data can be used to guide students who are considering similar career alternatives and to enhance educational systems and career advisory services. However, it also suggests that there may be a need for succession planning and recruitment efforts to ensure that younger nurses are adequately prepared to take on leadership roles in the future.

1.2 According to Gender

The gender-related study findings have multiple ramifications for preventing needlestick injuries. Given that 89% of nurses are female, it's critical to think about how this majority might affect safety procedures. Training that addresses any gender-specific issues female nurses may have with needle stick injuries may be beneficial. This concept is consistent with the findings of (Chavez, Lamorinas, & Ceneciro, 2023) that gender-based humor message patterns on social media are part of several layers of language biases against women and discriminatory actions against specific genders. It's also critical to have a working culture that supports nurses of both genders in reporting injuries and adhering to safety procedures. Although physical size and patient handling may vary, gender may not have a direct impact on the incidence of needlestick injuries; nevertheless, specific safety precautions may be beneficial. Additionally, given the dearth of male nurses, initiatives to increase the number of male healthcare professionals may contribute to a more balanced workforce, which could enhance safety procedures generally. In summary, although gender may not have a direct impact on injury prevention, taking it into account in safety procedures and training could increase adherence and lower risks.

1.3 In terms of Civil Status

This emphasizes the importance of safety training, and procedures should take into account married nurses' possible extra duties, such family commitments, which may interfere with their availability or focus during training. Furthermore, married nurses might be more likely to put safety first in order to maintain their health and stay away from any risks that might affect their family life. This theory is consistent with the findings of (Chavez, 2023), which found that respondents' health insecurities included concerns, apprehension, and borderline anxiety. However, while marital status may not have a substantial impact on the incidence of injuries, it is crucial to stress that all nurses should get similar training and awareness on the prevention of needlestick injuries.

1.4 In terms of Length of Service

The differing levels of experience indicate that different groups should have different measures for preventing needlestick injuries. Since they might not be as familiar with preventive measures, nurses with less than a year of experience would benefit from thorough training on safety protocols. Needlesticks and other sharps injuries (NSIs) are a major cause of occupational injuries in the healthcare industry (EU, 2011), and they are also a major safety concern for nursing students because they can result in a variety of blood-borne infections (Bouya et al., 2020). Given their relative familiarity with the work, nurses with two to three years of experience should take focused refresher courses to strengthen their skills. Regular updates on new safety procedures and technologies would support the maintenance of high safety standards for those with six or more years of experience. Additionally, as junior staff members can gain firsthand knowledge from their more seasoned colleagues, mentorship from seasoned nurses may help advance best practices for injury prevention.

Question 2. What are the barriers to compliance with needle stick injury protocols in terms of 2.1 perceived barriers, 2.2 behavioral factors, and 2.3 support systems?

2.1 In terms of Perceived Barriers

The information identifies a number of perceived obstacles to following needle stick injury protocols, most of which are associated with a lack of knowledge, a lack of resources, and worries about safety precautions. These results highlight the necessity of allocating resources and placing more emphasis on education in order to guarantee adherence to safety protocols. According to Tan (2020) and Barker AK et al. (2017), healthcare facilities should concentrate on raising awareness by providing frequent training and education programs to ensure all staff are knowledgeable about needle stick injury protocols. Other studies have also observed similar issues, such as a lack of funding and inadequate support for dedicated IPC teams, as significant barriers to effective IPC practices.To reinforce this understanding, clear and easily readable guidelines must be displayed in strategic locations. Healthcare facilities must also evaluate and enhance the location and accessibility of sharps containers to make sure there are enough for the appropriate disposal of needles and sharp objects. Safety awareness programs can be used to establish a culture that prioritizes patient care and healthcare worker safety. Lastly, establishments should examine their safety procedures to make sure that sharps containers are routinely emptied and changed and that safety signs are clearly visible. Healthcare institutions can lower the incidence of needlestick injuries, increase worker safety, and improve compliance by addressing these problems.

2.2 In terms of Behavioral Factors

These results point to a number of significant behavioral obstacles to following needlestick injury guidelines. The danger of additional injuries or the spread of bloodborne illnesses may be increased by unsafe practices and underreporting brought on by the fear of stigma

and prejudice, the belief that needle stick injuries are small, and the reluctance to report because of time constraints. Reducing anxiety and improving the overall learning experience are two benefits of addressing these behavioral factors, which are essential for increasing adherence to safety procedures and strengthening the safety culture in healthcare settings. These findings are consistent with those of Inoferio, Espartero, Asiri, Damin, and Chavez (2024). Healthcare facilities should concentrate on developing a welcoming atmosphere that lessens the stigma and discrimination related to needlestick injuries in order to overcome these obstacles. Awareness campaigns that stress the value of reporting such instances and reassure employees that they won't experience prejudice or unfavorable outcomes could accomplish this. To counter the idea that needle stick injuries are insignificant, further training should be offered to emphasize the dangers and the seriousness of these injuries. Additionally, healthcare facilities ought to promote safe needle handling procedures, like avoiding the recapping of needles, which can result in mishaps. According to research by Bucoy et al. (2024), this theory raises job satisfaction, which in turn raises the standard of learning opportunities. Time constraints can be addressed by giving employees greater time and resources to report injuries, perhaps through streamlined reporting systems. By focusing on these behavioral aspects, healthcare organizations can improve adherence to needle stick injury protocols, ultimately reducing the risk of harm to healthcare workers and improving overall safety.

2.3 In terms of Support Systems

The results indicate that although nurses have access to vital resources like laboratory testing and prophylaxis and usually feel supported by hospital administration, there is still opportunity for improvement in a few areas. Because safety boxes are thought to be inadequate, nurses could not have enough access to suitable disposal containers, which could lead to unsafe needle handling procedures. Furthermore, even if there are procedures in place to handle needle stick accidents, the general belief that there might be weaknesses in the support network suggests that support systems need to be improved even further in order to guarantee complete safety and compliance. Needles are used in healthcare, and while all hospitals have policies on how to handle and dispose of them, as well as the newest safety-conscious needle designs (King KC, Strony R. 2023), hospital administrators can make sure that safety boxes are always available and accessible in every unit. This can entail performing routine evaluations of the placement and distribution of safety boxes. In order to guarantee that all medical personnel are aware of prophylactic and laboratory test options and feel comfortable using them following a needlestick injury, administrators should also strengthen and enhance communication about their availability. Last but not least, hospitals should make sure their standard operating procedures are thorough, current, and regularly adhered to by reviewing and updating them. This could also include further training for staff on the importance of following protocols and using safety equipment. Strengthening these support systems will help improve compliance with needle stick injury protocols and enhance overall safety within the healthcare setting.

Question 3. What is the current level of compliance with needle stick injury protocols among health workers assigned in public hospitals in the areas of 3.1 safety procedures, 3.2 protocol of knowledge, and 3.3 training participation?

3.1 In terms of Safety Procedures

According to the statistics, nurses working in public health hospitals typically follow needle stick injury regulations very well, especially when it comes to things like properly disposing of needles, keeping needles and syringes apart, and filing incident reports following accidents. There is certainly room for improvement, nevertheless, given the somewhat reduced adherence to

the "Do not Recap" protocol and sporadic glove usage errors. Even if they are quite small, these noncompliance gaps could raise the risk of harm and infection if left unchecked. Healthcare facilities should hold refresher training courses to emphasize the value of the "Do not Recap" protocol and the regular use of gloves during all injection operations in order to further increase compliance.

Leaks may be reduced with frequent audits and reminders about these procedures. High compliance levels can also be maintained by making sure that the required safety gear, like gloves and sharps containers, is easily accessible and readily available. This study supports the notion of (Carpio, L. 2024) by offering sufficient support systems, faculty development programs, and cultivating a positive social environment. Supportive management techniques combined with ongoing monitoring and feedback on compliance rates will motivate healthcare professionals to uphold a strong commitment to safety procedures, thereby lowering the likelihood of needle stick injuries and enhancing general safety in the healthcare setting.

3.2 In terms of Protocol of Knowledge

According to the data, nurses working in public hospitals exhibit a thorough understanding of needle stick injury standards, particularly when it comes to reporting injuries and following instructions. The somewhat lower compliance rate with regard to disposing of sharp containers at the proper time, however, indicates that this area might use more focus. Despite the high level of general compliance, there are a few small gaps that could improve safety and lower the chance of needlestick accidents if they are filled. It is advised that healthcare institutions stress the significance of promptly disposing of sharps containers and make sure staff members are reminded to do so once the containers are ¾ full in order to further improve compliance.

This concept is in line with research by Hussain (2020), which demonstrated a notable improvement in sharps bin container compliance in a district general hospital (DGH), indicating heightened awareness. Sharps management must be routinely audited in order to appropriately evaluate practice and avoid exposure to diseases transmitted by blood. To overcome any shortcomings in this area, regular training and reinforcement regarding the correct disposal processes should be carried out. Healthcare facilities should also keep raising awareness of needle stick injury protocols, upholding high standards for safety measure understanding and promoting timely injury reporting. By regularly monitoring and providing feedback on protocol compliance, healthcare facilities can ensure that healthcare workers continue to follow best practices, reducing the risk of needle stick injuries and maintaining a safe environment for both staff and patients.

3.3 In terms of Training Participations

According to the results, nurses working in public hospitals typically show a great dedication to taking part in mentoring and training programs aimed at preventing needle stick injuries. The moderate adherence to training session facilitation, however, indicates that participation in these activities can be irregular. This may indicate that more healthcare professionals should be encouraged to actively participate in teaching others, since this could enhance facility-wide awareness and compliance. It is advised that hospital administrators aggressively encourage healthcare professionals to have a more active part in leading training sessions and seminars in order to increase information exchange and improve overall compliance. This could be accomplished by offering rewards or recognition to employees who support mentorship and training programs. To maintain high compliance levels, it is also important to keep up the focus on frequent staff training sessions, especially on preventing needle stick injuries. In order to improve patient and healthcare worker safety, healthcare facilities frequently include such measures in their infection control strategies (Chakma et al., 2024). Encouraging peer-to-peer

learning and assigning more staff to mentor junior nurses could improve the hospital's overall safety culture. The hospital can develop a more comprehensive and cooperative strategy for preventing needle stick injuries by making sure that all healthcare personnel participate in and facilitate training.

Question 4. Is there a significant difference in the level of compliance with needle stick injury protocols among health workers in public hospitals when data are grouped in terms of 4.1 age, 4.2 gender, 4.3 civil status, 4.4 length of service?

4.1 According to Age

The results indicate that Protocol Knowledge varies significantly across age groups, although Safety Procedures and Training Procedures do not. It could be helpful to concentrate on improving protocol education for age groups that show lower levels of understanding in order to remedy this. According to the findings of (Entong, Garil, Muarip, & Chavez, 2024), academic training's language delivery approach has a big impact on learning, just as the speaker's emotional bond with the audience has a big impact on how long and how well the learning process lasts. This could involve adjusting educational materials to different age groups, using more interactive or age-appropriate methods for teaching, and reinforcing the importance of protocol knowledge through regular refresher courses. By improving protocol knowledge across all age groups, healthcare facilities can ensure a more consistent and comprehensive understanding of safety procedures, leading to better compliance and safer working environments for all employees.

4.2 According to Gender

The data reveals that although gender does not appear to affect training or safety procedure experiences, it does affect protocol knowledge, with women demonstrating a greater comprehension. According to the findings of (Chavez & Cuilan, 2023), gender-based humor reinforces power imbalances, promotes discriminatory practices, and perpetuates stereotypes. This suggests that more focused or varied training methods may be required to guarantee that all employees, regardless of gender, have an equal level of awareness and understanding of workplace guidelines. It is advised that healthcare institutions concentrate on improving protocol awareness for both sexes in order to increase general compliance and safety.This could be accomplished by guaranteeing equitable access to thorough, current training materials and promoting regular exposure to protocol recommendations. Furthermore, although both sexes typically view safety and training protocols similarly, regular evaluations and revisions to these programs should be taken into account to maintain their efficacy and applicability. It might be helpful to modify training methods in order to close the noted knowledge gap. This could involve utilizing more dynamic or captivating formats that promote equal involvement from both sexes. Additionally, knowing why women know more about protocols may help male employees become more engaged and retain information, guaranteeing that they are just as competent at adhering to workplace rules. By focusing on these areas, healthcare facilities can foster a safer environment and enhance the overall effectiveness of their safety protocols and training programs.

4.3 According to Civil Status

The p-value of 0.474 and the F-ratio of 0.751 for safety procedures indicate that civil status groups adhere to safety procedures similarly. With an F-ratio of 0.893 and a p-value of 0.054, procedure Knowledge also demonstrates no discernible variations, suggesting that the groups' levels of procedure knowledge are similar. Finally, the p-value of 0.173 and the F-ratio of 1.784 for Training Procedures show that civil status has no discernible impact on training experiences or perceptions. As a result, the hypothesis that "When data are grouped in terms of civil status, there is no significant difference in the level of compliance with needle stick injury

protocols among health workers in public hospitals" is accepted.This idea is in line with the study of Chavez (2023), which found that their adaptive strategies included open communication with others, adherence to government guidelines, and compliance with health protocols. Nevertheless, it is crucial to maintain monitoring to guarantee that people from all civil status backgrounds have equal access to training and information. Maintaining high levels of compliance and creating a safer workplace for all employees can be achieved through routine evaluation of safety protocols and training initiatives.

4.4 According to Length of Service

Since these areas did not exhibit considerable variation, it is advised that future research investigate additional potential factors influencing safety and compliance. Training must be properly planned, designed, and prepared in order to be effective. It is essential to apply design thinking to the utilization of instructional strategies and resources. Well-designed training contributes to the sustainability of businesses, which in turn leads to increased work safety because of its high effectiveness (Bęś, & Strzałkowski, 2024). Furthermore, extending the scope of the existing study or carrying out additional research with a wider variety of factors may aid in offering more profound insights into enhancing training and compliance procedures.

Question 5. Does the barrier to compliance predict the level of compliance with needle stick injury protocols among health workers in public hospitals?

These results suggest that adherence to safety procedures is significantly influenced by perceived impediments. The degree of adherence to safety measures is positively correlated with perceived barriers. Healthcare facilities should concentrate on identifying and addressing the barriers that affect compliance in order to improve adherence to needle stick injury protocols. This suggests that addressing and mitigating barriers could lead to better adherence to protocols. This idea is aligned with the findings of (Chavez, Gregorio, Araneta, Bihag, 2023) This health crisis caused unimaginable impacts and changes to the labor force and organizations pushing many policies and laws in the edge. This could entail enhancing institutional support, increasing training resources, and guaranteeing the availability of essential safety gear. In the end, lowering these perceived obstacles may result in better protocol adherence, which will benefit healthcare professionals' safety and wellbeing.

7. Conclusion

The study reveals significant insights into the compliance with needlestick injury protocols among nurses in public hospitals. Generally, nurses assigned in public hospitals is primarily composed of experienced nurses, with a relatively smaller proportion of younger staff. The study identified Barriers to compliance with needle stick injury prevention protocol such as a lack of awareness regarding safety guidelines, insufficient sharps containers, and fear of social stigma for reporting injuries are significant obstacles to adherence. However, a well-established support system for post-injury care is present, aiding nurses in managing needlestick injuries effectively. Nurses assigned in public hospitals demonstrate a generally high level of compliance with needlestick injury protocols. Safety procedures and training procedures did not show a statistically significant difference across age groups, but there was a significant difference in protocol knowledge, indicating that age may influence nurses' understanding of safety protocols. In general, gender does not appear to impact experiences with safety procedures or training, it does influence protocol knowledge, with females demonstrating a higher level of understanding compared to their male counterparts.No significant difference was found in the level of compliance when grouped by civil status or length of service, suggesting that these factors may not have a substantial effect on adherence to needlestick injury protocols.The analysis suggests that increased

awareness of these barriers may contribute to improved compliance, with higher perceived barriers correlating with higher compliance rates**.**

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JABER PARSA PILI1, NAZANIN IZADI2, and FARIDEH GOLBABAEI Factors Associated with Needle Stick and Sharp Injuries among Health Care Workers

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