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Original Article

Microbiology Section

Knowledge, Attitude and Practice on Needle Stick Injury Management among Nurses and Nursing Students: A Cross-sectional Study

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ABSTRACT

Introduction: Needle Stick Injuries (NSIs) remain a prevalent occupational hazard among healthcare workers, particularly nurses and nursing students. These injuries pose substantial risks for the transmission of bloodborne pathogens, including Human Immunodeficiency Virus (HIV), Hepatitis B and C. Despite the implementation of safety protocols, NSIs continue to occur, necessitating an evaluation of healthcare professionals' Knowledge, Attitudes and Practices (KAP) concerning injury prevention.

Aim: To assess and compare the KAP regarding NSI prevention among nurses and nursing students.

Materials and Methods: This cross-sectional study was conducted at Muzaffarnagar Medical College, Uttar Pradesh, India over a period of three months, from December 2024 to February 2025. A total of 207 participants were included, comprising 83 nurses and 124 nursing students, selected using proportionate stratified random sampling to ensure representation from both groups. The primary inclusion criteria were individuals currently working or studying in the nursing profession at the institution who consented to participate. Data were collected using a structured, self-administered questionnaire divided into four sections: demographic details and KAP. Demographic parameters included age, gender, educational qualification and work experience. Knowledge was assessed using multiple-choice questions, while attitude and practice were evaluated using a 4-point Likert scale ranging from "strongly disagree" to "strongly agree." The study methodology involved initial orientation sessions, distribution of questionnaires during working hours and collection within 48 hours to ensure minimal data loss. Statistical analysis was carried out using Statistical Package for the Social Sciences (SPSS) version 24.0, with results expressed in frequencies, percentages, means and standard deviations. The chi-square test and t-test were used to assess associations and a p-value <0.05 was considered statistically significant.

Results: The mean age was significantly higher among nurses (28.4±4.2 years) compared to students (22.1±2.8 years) (p-value <0.001). Gender distribution was comparable, with 27 males (13.0%) and 180 females (87.0%) (p-value=0.62). Work experience of ≤1 year was more common among nursing students (n=51, 41.1%) than nurses (n=10, 12.0%) (p-value<0.001). Good knowledge regarding NSIs was observed in 77 participants (37.2%), including 32 nurses (38.6%) and 45 students (36.3%); moderate knowledge in 107 (51.7%) and poor knowledge in 23 (11.1%) (p-value=0.853). A positive attitude was reported by 128 participants (61.8%), comprising 52 nurses (62.7%) and 76 students (61.3%); neutral and negative attitudes were seen in 59 (28.5%) and 20 (9.7%) participants, respectively (p-value=0.815). Good practices were reported by 115 participants (55.6%), including 47 nurses (56.6%) and 68 students (54.8%); moderate in 75 (36.2%) and poor in 17 (8.2%) (p-value=0.73), indicating no significant differences between the two groups in terms of knowledge, attitude, or practice.

Conclusion: The study underscores the need for enhanced education and training programs to improve both knowledge and practices regarding NSI prevention. Continuous efforts are required to foster safer practices and ensure that healthcare workers, particularly nursing students, are adequately prepared to prevent NSIs in clinical settings.

Keywords: Accidental exposure, Health personnel, Infection control, Occupational health, Safety management

INTRODUCTION

The NSIs represent a critical occupational hazard for healthcare workers, particularly for those in direct contact with patients, such as nurses and nursing students. These injuries primarily occur when a needle or other sharp object punctures the skin, potentially exposing the individual to bloodborne pathogens, including hepatitis B, hepatitis C and HIV. Such injuries not only pose a threat to healthcare workers' but also contribute to the global burden of infectious diseases in healthcare settings. Despite substantial advancements in the development of safety devices and precautionary measures, NSIs continue to occur at alarmingly high rates, suggesting gaps in both knowledge and practice among healthcare personnel [1].

Research has consistently shown that while healthcare workers generally possess a foundational understanding of the risks associated with NSIs, their attitudes toward preventive measures and the implementation of safety protocols remain inconsistent. Several studies have indicated that even though nurses are well aware of the potential risks, a lack of adherence to safety practices, such as the proper disposal of needles and the use of protective equipment, contributes to the ongoing incidence of NSIs. The discrepancy between knowledge and practice is a key concern, suggesting that factors such as workload, time constraints and inadequate training may influence safety behaviour in clinical settings [2,3].

Additionally, nursing students, often considered to be in the early stages of their clinical careers, are particularly vulnerable to NSIs due to their limited hands-on experience and the stressful nature of the clinical environment. While studies suggest that nursing students have a basic understanding of NSI risks, they often lack the practical skills and confidence needed to implement safe practices effectively. This highlights the importance of early and continuous education regarding NSIs and the need for structured training programs that emphasise both knowledge and practical application [4,5].

A comprehensive understanding of the KAP surrounding NSIs is crucial in designing targeted interventions to mitigate the risks

associated with these injuries. By assessing the KAP of healthcare workers, specifically nurses and nursing students, it is possible to identify the gaps in knowledge, misconceptions and barriers to proper practices. Such evaluations are integral to the development of more effective safety protocols and educational programs that aim to reduce the incidence of NSIs and protect healthcare workers from preventable harm [6-8].

This study is novel in its comparative approach, evaluating the KAP regarding NSI prevention among both nurses and nursing students within the same healthcare setting. While most previous research has focused on one group, this study offers a unique opportunity to explore the differences between these two groups in terms of their understanding and implementation of safety protocols. The rationale for this study arises from the persistent occurrence of NSIs among healthcare workers, despite the availability of safety measures.

By identifying potential gaps between theoretical knowledge and practical application, this study aimed to inform targeted interventions and educational improvements, ultimately contributing to safer healthcare environments and better protection for healthcare workers. The study hypothesises that nurses will demonstrate better knowledge and practices than nursing students, with both groups likely exhibiting a gap between their knowledge and actual practices, thereby underscoring the need for enhanced training and institutional interventions. The aim of this study was to assess and compare the KAP regarding NSI prevention among nurses and nursing students.

Objectives:

1. To evaluate the KAP regarding NSI prevention among nurses and nursing students.
2. To compare the KAP related to NSI prevention between nurses and nursing students.

MATERIALS AND METHODS

This cross-sectional study was conducted among nurses and nursing students at Muzaffarnagar Medical College, Muzaffarnagar, Uttar Pradesh, India from December 2024 to February 2025, following ethical approval from the Institutional Ethics Committee (IEC Approval No. MMC/IEC/2025/312).

Inclusion criteria: Registered nurses and nursing students currently enrolled or employed at Muzaffarnagar Medical College, with a minimum of six months of clinical exposure were included in the study.

Exclusion criteria: Those who declined consent or had a history of occupational exposure to bloodborne infections were excluded from the study.

Sample size calculation: The required sample size was determined using Cochran's formula [5] for cross-sectional studies:

$$n=\frac{Z^2P(1-P)}{d^2}$$

where:

n=required sample size

Z=1.96 (for a 95% confidence level)

P=16% (0.16), based on Ramya MR et al., (2021) [6].

d=5% (margin of error)

$$n=\frac{(1.96)^2\times0.16\times(1-0.16)}{(0.05)^2}=207$$

The final sample size of 207 participants was determined using Cochran's formula [5], with proportionate stratified random sampling (40% nurses, n=83 and 60% nursing students, n=124) to ensure adequate representation of both groups.

Questionnaire design and data collection: Data were collected using a structured, self-administered questionnaire consisting of four sections: Section I captured demographic information through five points (age, gender, professional designation, clinical experience and prior training on NSI prevention); Section II assessed knowledge with 10 multiple-choice questions; Sections III and IV evaluated attitude and practice, respectively, each comprising 10 statements measured on a 4-point Likert scale. Each item in the KAP domains carried a score of one mark. The questionnaire was self-developed following an extensive review of prior studies on NSI awareness and prevention. The scale was designed based on the existing literature and validated through expert consultations [6,7,9]. The questionnaire underwent pretesting on a subset of 15 participants to ensure content validity, clarity and reliability before full-scale administration. Content validity was assessed through expert evaluation, yielding a Content Validity Index (CVI) of 0.88. Internal consistency reliability was measured using Cronbach's alpha, which was 0.82 for the overall questionnaire, indicating good reliability [8]. Participants were briefed on the study objectives and written informed consent was obtained before data collection. The survey was conducted in a controlled environment, maintaining anonymity and confidentiality to minimise response bias. Completed questionnaires were systematically reviewed for completeness and accuracy before analysis.

Scoring criteria: These scoring thresholds were informed by established practices in KAP studies and further refined in consultation with subject matter experts during the tool development phase [6,7,9]. Knowledge scores were categorised as good (8-10), moderate (5-7), or poor (0-4), based on Bloom's Taxonomy and expert input from the literature review [10]. Attitude and practice were assessed using self-developed items on a 4-point Likert scale, with 10 questions in each domain. The total scores for attitude and practice were similarly classified as positive/good (32-40), neutral/moderate (20-31), or negative/poor (10-19), ensuring consistency in interpretation across all three domains.

The structured questionnaire used for data collection is provided in [Annexure I].

STATISTICAL ANALYSIS

Completed questionnaires were reviewed for completeness and accuracy before analysis. Data were entered into SPSS version 24.0 for statistical processing. Descriptive statistics (frequency and percentage) were used to summarise categorical variables. The Chi-square test was employed to assess associations between categorical variables, including the comparison of KAP scores between nurses and nursing students. Additionally, an independent t-test was applied to compare the means of continuous variables. A p-value <0.05 was considered statistically significant.

RESULTS

A total of 207 participants were included in the study, comprising 83 (40.1%) nurses and 124 (59.9%) nursing students. The mean age of nurses was 28.4±4.2 years, while that of nursing students was 22.1±2.8 years; this difference was statistically significant {t(205)=12.95, p-value <0.001}. Gender distribution was comparable between the two groups, with 27 (13.0%) males and 180 (87.0%) females, showing no statistically significant difference {$\chi^2(1)=0.24$, p-value=0.62}. Regarding work experience, the majority of nursing students had ≤1 year of experience (51, 41.1%), whereas only 10 (12.0%) nurses fell into this category. Conversely, 34 (41.0%) nurses had >5 years of experience compared to 14 (11.3%) students. The difference in work experience between the groups was statistically significant {$\chi^2(2)=33.07$, p-value <0.001}. These findings are summarized in [Table/Fig-1].

Knowledge

The knowledge regarding NSI was assessed among 207 participants, consisting of 83 nurses and 124 nursing students. The

Characteristic	Nurses (n=83)	Students (n=124)	Total (N=207)	Test used	Test value	p-value	Statistical significance
Age (Mean±SD, years)	28.4±4.2	22.1±2.8	–	Independent t-test	t (205)=12.95	<0.001	**Significant**
Gender n (%)							
Male	12 (14.5)	15 (12.1)	27 (13.0)	Chi-square (χ^2)	χ^2 (1)=0.24	0.62	Not significant
Female	71 (85.5)	109 (87.9)	180 (87.0)				
Work experience n (%)							
≤1 year	10 (12.0)	51 (41.1)	61 (29.5)	Chi-square (χ^2)	χ^2 (2)=33.07	<0.001	**Significant**
1-5 years	39 (47.0)	59 (47.6)	98 (47.3)				
>5 years	34 (41.0)	14 (11.3)	48 (23.2)				

[Table/Fig-1]: Demographic characteristics of participants.
Independent samples t-test used for continuous variable (age); Chi-square test applied for categorical variables (gender and work experience). p<0.05 indicates statistical significance. SD: Standard deviation; n=Number of participants

participants' knowledge levels were classified into three categories: good knowledge, moderate knowledge and poor knowledge.

- Good knowledge: A total of 77 participants (37.2%) exhibited good knowledge. Among them, 32 nurses (38.6%) and 45 nursing students (36.3%) were categorised as having good knowledge.
- Moderate knowledge: The majority, 107 participants (51.7%), had moderate knowledge. Of these, 41 were nurses (49.4%) and 66 were nursing students (53.2%).
- Poor knowledge: A total of 23 participants (11.1%) demonstrated poor knowledge. Among them, 10 were nurses (12.0%) and 13 were nursing students (10.5%).

There was no statistically significant difference between the two groups. The distribution of knowledge levels is presented in [Table/Fig-2].

Knowledge level	Nurses (n=83) n (%)	Nursing students (n=124) n (%)	Total (n=207) n (%)	p-value	Chi-square (χ^2)
Good knowledge	32 (38.6)	45 (36.3)	77 (37.2)	0.853	0.32
Moderate knowledge	41 (49.4)	66 (53.2)	107 (51.7)		
Poor knowledge	10 (12.0)	13 (10.5)	23 (11.1)		

[Table/Fig-2]: Knowledge levels among nurses and nursing students.
Chi-square test applied, p-value=0.853, χ^2=0.32, indicating no statistically significant difference (p<0.05 indicates statistical significance). n: Number of participants

Attitude

The attitude of participants towards NSIs was assessed across three categories: positive, neutral and negative. The results are presented in [Table/Fig-3]. Majority of participants reported a positive attitude toward NSI, with 128 individuals (61.8%) overall. Among these, 52 nurses (62.7%) and 76 nursing students (61.3%) demonstrated a positive attitude.

Attitude level	Nurses (n=83) n (%)	Nursing students (n=124) n (%)	Total (n=207) n (%)	p-value	Chi-square (χ^2)
Positive	52 (62.7)	76 (61.3)	128 (61.8)	0.815	0.43
Neutral	22 (26.5)	37 (29.8)	59 (28.5)		
Negative	9 (10.8)	11 (8.9)	20 (9.7)		

[Table/Fig-3]: Distribution of attitude towards needle stick injuries among nurses and nursing students.
Chi-square test applied; p=0.81, χ^2=0.43, indicating no statistically significant difference (p<0.05 was considered statistically significant). n: Number of participants

There was no statistically significant difference between the two groups. This suggests that both nurses and nursing students exhibited similar attitudes regarding NSI.

Practice

The participants' practices concerning NSI prevention were assessed using a 4-point Likert scale, with responses categorised as good, moderate and poor practices based on the total score. The results are presented in [Table/Fig-4]. The findings indicate that a majority of both nurses (56.6%) and nursing students (54.8%) exhibited good practices in preventing NSIs. Additionally, 33.7% of nurses and 37.9% of nursing students demonstrated moderate practices. A smaller proportion of participants—9.6% of nurses and 7.3% of nursing students—showed poor practices.

Practice level	Nurses (n=83) n (%)	Nursing students (n=124) n (%)	Total (n=207) n (%)	p-value	Chi-square (χ^2)
Good	47 (56.6)	68 (54.8)	115 (55.6)	0.73	0.63
Moderate	28 (33.7)	47 (37.9)	75 (36.2)		
Poor	8 (9.6)	9 (7.3)	17 (8.2)		

[Table/Fig-4]: Distribution of practice regarding needle stick injuries among nurses and nursing students.
Chi-square test applied; p=0.73, χ^2=0.63, indicating no statistically significant difference (p<0.05 indicates statistical significance). n: Number of participants

There was no significant difference in practice levels between nurses and nursing students (χ^2=0.63, p=0.73), suggesting that both groups adhere similarly to safety protocols for preventing NSIs.

These results suggest that both nurses and nursing students generally exhibit a high level of compliance with safe practices regarding NSI prevention, with no notable disparity between the two groups.

DISCUSSION

The present study assessed the KAP related to NSIs among nurses and nursing students. While overall awareness and safety practices were moderately encouraging, comparisons with existing literature reveal both important insights and persistent gaps in understanding and implementation.

Khelgi A et al., found that although awareness of universal precautions (94.7%) and Post-Exposure Prophylaxis (PEP) (84%) was high among nursing faculty, only 36% possessed complete knowledge of preventive guidelines and over half were unaware of them [1]. This aligns with the current findings, where knowledge levels were largely moderate. Despite prior training, the continued practice of unsafe actions—such as recapping needles (29.3%) and washing hands with only water after exposure (68%)—highlights the need to reinforce adherence to protocols in addition to improving awareness.

Gupta D et al., reported a higher prevalence of NSIs among younger and less experienced healthcare staff, particularly students with less than one year of clinical exposure [2]. The present findings similarly indicate that nursing students, who possessed less clinical experience, demonstrated greater vulnerability to NSIs. Risky practices, such as recapping (27.5%) and self-inflicted injuries (76.8%), were common, reflecting deficiencies in procedural training. Furthermore, their study noted significant gaps in knowledge and practices related to safety devices and injury reporting—patterns also observed in our participant cohort.

Sonia et al., documented high awareness levels regarding NSI prevention, with over 90% of participants trained in infection

prevention and knowledgeable about PEP and reporting procedures [9]. Despite this, 48% sustained NSIs and more than half failed to receive PEP. These findings underscore a persistent disconnect between theoretical knowledge and its real-world application, a discrepancy mirrored in present study results. While nearly all participants in Sonia's study immediately disposed of sharps (99%), unsafe handling methods were more frequently observed in present study cohort, suggesting differences in institutional enforcement and individual compliance.

Similarly, Datar UV et al., noted high levels of awareness and training among nurses, with 89.5% immunised against Hepatitis B and 92.5% aware of PEP [11]. Nevertheless, 48% still experienced NSIs and over half did not access PEP, underscoring the limitations of awareness alone. These findings reinforce the notion that knowledge must be supported by institutional systems that facilitate and encourage safe conduct [12].

Wang D et al., emphasised the heightened susceptibility of nursing students to NSIs, attributing it to limited clinical exposure and inconsistent safety training [13]. Unsafe actions, such as needle recapping and manual separation of syringes, were frequently reported. These practices, often linked to inadequate supervision and procedural shortcuts, were also evident among the less experienced participants in the present study. This supports the necessity of close mentorship and consistent monitoring during clinical placements.

Al-Mugheed K et al., found that 24.2% of nursing students experienced NSIs, with many failing to report incidents due to fear and stigma [14]. Despite positive attitudes toward injury prevention, risky habits such as needle recapping (50.1%) and inconsistent glove usage were common. These findings resonate with present study observations, where favourable mindsets were not consistently translated into safe execution. This suggests that institutional culture, support mechanisms and accountability structures are critical for driving change.

In contrast, Yazid J et al., reported substantially better outcomes, with only 5.3% of participants experiencing NSIs and universal adherence to reporting protocols and PEP [15]. High rates of glove use (66.4%) and consistent utilisation of safety disposal bins were also noted. Compared to the present findings, the study by Yazid J et al., demonstrates the effectiveness of comprehensive hospital policies and routine monitoring [15]. These results indicate that the establishment of a strong safety culture can significantly reduce the incidence of NSIs.

The current findings reaffirm the essential role of hands-on experience, focused training and organisational support in mitigating NSI risk. Although knowledge and attitude scores were generally adequate, unsafe routines persist, highlighting the need for ongoing reinforcement. Institutions must ensure accessible, user-friendly reporting systems and work to eliminate the stigma associated with injury disclosure. Embedding NSI prevention into routine clinical practice—rather than relying solely on periodic training—may help bridge the gap between knowledge and application [16-18].

Future research should investigate educational interventions such as simulation-based training and mobile application systems for tracking NSIs. Longitudinal studies may offer insights into whether early exposure to preventive strategies among students results in safer long-term practices. Additionally, peer-led workshops and real-time supervision models could be evaluated for their potential to reduce high-risk activities like needle recapping. Ultimately, fostering a non punitive, safety-oriented institutional culture will be vital for achieving sustained adherence to preventive protocols and minimizing occupational hazards.

One of the key strengths of this study was its thoughtful design and balanced approach. By using proportionate stratified random sampling, present study was able to ensure fair representation of both nurses and nursing students, making the comparisons more meaningful. The questionnaire was carefully structured, combining multiple-choice questions to assess knowledge and a 4-point Likert scale to evaluate attitudes and practices, which helped capture a well-rounded picture. Additionally, the use of SPSS version 24.0 and Chi-square tests provided a solid statistical foundation, adding confidence to the reliability of present study results.

Limitation(s)

Despite its contributions, this study had several limitations. Being cross-sectional in nature, it precludes any inference of causality between KAP. The use of a self-administered questionnaire may have introduced response bias, including potential overreporting of positive behaviours due to social desirability. Moreover, as the study was conducted in a single tertiary care institution, the findings may not be generalisable to broader populations or different healthcare settings. Additionally, external factors such as institutional policies, frequency of training sessions and access to protective resources were not evaluated, which may have influenced the KAP outcomes.

CONCLUSION(S)

This study highlights significant gaps between the KAP regarding NSI prevention among nurses and nursing students at Muzaffarnagar Medical College. While participants demonstrated adequate awareness of the risks and preventive measures associated with NSIs, a disconnect was observed between this knowledge and actual preventive practices. This finding was consistent with prior studies both nationally and internationally, which have similarly identified discrepancies between awareness and adherence to safety protocols in healthcare settings. The results underscore the need for targeted educational interventions that not only enhance knowledge but also foster positive attitudes and reinforce safe practices.

It is crucial for healthcare institutions to implement ongoing training programs, alongside stricter adherence to safety guidelines, to ensure that the knowledge acquired is effectively translated into practice. Moreover, addressing the psychological and behavioural factors that influence attitudes towards NSIs can play a pivotal role in cultivating a culture of safety within healthcare environments. Such comprehensive measures are essential for mitigating the risks associated with NSIs and ensuring the wellbeing of healthcare workers and students.

Authors' contribution: All authors listed have made a substantial, direct and intellectual contribution to the work and approved it for publication.

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[ANNEXURE I]

Structured Questionnaire on Knowledge, Attitude and Practice Regarding Needle Stick Injury (NSI) Prevention

Instructions:

- Please respond to all questions honestly.
- For multiple-choice questions, select the most appropriate answer.
- Sections 3 and 4 utilise a 4-point Likert scale to assess attitudes and practices.

Section 1: Demographic Information

1. Age Group:

☐ 18-25 years ☐ 26-35 years ☐ 36-45 years ☐ Above 45 years

2. Gender:

☐ Male ☐ Female ☐ Other

3. Professional Status:

☐ Nursing Student ☐ Registered Nurse

4. Years of Clinical Experience (For Nurses Only):

☐ Less than 1 year ☐ 1-5 years ☐ 6-10 years ☐ More than 10 years

5. History of Formal Training on Needle-Stick Injury Prevention:

☐ Received formal training ☐ No formal training received

Section 2: Knowledge on Needle Stick Injuries (NSIs)

(Select the most appropriate answer for each question.)

1. Which of the following is the primary concern associated with NSIs?

- ☐ Transmission of bloodborne infections.
- ☐ Localised tissue trauma.
- ☐ Allergic reactions
- ☐ Minor skin abrasions

2. What is the immediate first step after sustaining an NSI?

- ☐ Rinse the site with soap and water and report the incident
- ☐ Ignore the injury if it appears minor
- ☐ Cover the wound and monitor for symptoms
- ☐ Apply alcohol and continue working

3. Which bloodborne pathogen carries the highest risk of transmission from NSIs?

- ☐ HIV
- ☐ Hepatitis B
- ☐ Hepatitis C
- ☐ Syphilis

4. What is the recommended time frame for initiating PEP following a high-risk NSI?

- ☐ Within 1 hour
- ☐ Within 24 hours
- ☐ Within 7 days
- ☐ Only if symptoms develop

5. Which of the following is the correct method for needle disposal?

- ☐ Immediate disposal into a designated sharps container
- ☐ Recapping before disposal
- ☐ Placing in general medical waste
- ☐ Keeping it aside for later collection

6. Which of the following significantly increases the likelihood of NSIs?
- ☐ Recapping needles manually
- ☐ Using needle safety-engineered devices
- ☐ Immediate disposal of sharps
- ☐ Adhering to universal precautions

7. How frequently should healthcare professionals receive NSI prevention training?
- ☐ Once in their career
- ☐ Every five years
- ☐ Annually
- ☐ Only after an incident occurs

8. Who should be notified immediately following an NSI?
- ☐ A colleague
- ☐ The infection control officer
- ☐ A personal physician
- ☐ No one, self-care is sufficient

9. Which approach is most effective for reducing NSIs?
- ☐ Wearing double gloves
- ☐ Using safety-engineered sharps devices
- ☐ Relying on experience-based handling
- ☐ Avoiding needle use whenever possible

10. What is the most effective institutional measure for NSI prevention?
- ☐ Providing needle safety training
- ☐ Restricting access to high-risk procedures
- ☐ Encouraging self-reporting of injuries
- ☐ Ensuring the availability of PEP at all times

Section 3: Attitude Towards Needle Stick Injury Prevention

(4-Point Likert Scale: 1=Strongly disagree, 2=Disagree, 3=Agree, 4=Strongly agree)

1. NSIs represent a serious occupational hazard for healthcare professionals. ☐ 1 ☐ 2 ☐ 3 ☐ 4
2. Regular training sessions on NSI prevention should be mandatory. ☐ 1 ☐ 2 ☐ 3 ☐ 4
3. Reporting all NSI incidents is essential for improving safety. ☐ 1 ☐ 2 ☐ 3 ☐ 4
4. I feel confident in handling sharps safely. ☐ 1 ☐ 2 ☐ 3 ☐ 4
5. PEP should be easily accessible in all institutions. ☐ 1 ☐ 2 ☐ 3 ☐ 4
6. NSIs can always be prevented by following guidelines. ☐ 1 ☐ 2 ☐ 3 ☐ 4
7. PPE alone is sufficient for NSI prevention. ☐ 1 ☐ 2 ☐ 3 ☐ 4
8. My institution enforces strict NSI prevention policies. ☐ 1 ☐ 2 ☐ 3 ☐ 4
9. Protocol updates are necessary to reduce NSI occurrences. ☐ 1 ☐ 2 ☐ 3 ☐ 4
10. Structured training reduces NSI-related risks. ☐ 1 ☐ 2 ☐ 3 ☐ 4

Section 4: Practices Related to Needle Stick Injury Prevention

(4-Point Likert Scale: 1=Never, 2=Sometimes, 3=Often, 4=Always)

1. I recap used needles manually before disposal. ☐ 1 ☐ 2 ☐ 3 ☐ 4
2. I dispose of used needles in a sharps container immediately. ☐ 1 ☐ 2 ☐ 3 ☐ 4
3. I report all NSI incidents per policy. ☐ 1 ☐ 2 ☐ 3 ☐ 4
4. I wear gloves when handling sharps. ☐ 1 ☐ 2 ☐ 3 ☐ 4
5. I follow infection control protocols while using needles. ☐ 1 ☐ 2 ☐ 3 ☐ 4
6. I encourage colleagues to follow NSI prevention guidelines. ☐ 1 ☐ 2 ☐ 3 ☐ 4
7. I check disposal bins before discarding sharps. ☐ 1 ☐ 2 ☐ 3 ☐ 4
8. I avoid hand-carrying used needles. ☐ 1 ☐ 2 ☐ 3 ☐ 4
9. I participate in NSI prevention training when offered. ☐ 1 ☐ 2 ☐ 3 ☐ 4
10. I ensure safe disposal of all sharps, including scalpels and glass. ☐ 1 ☐ 2 ☐ 3 ☐ 4