

Original Research Article

## Knowledge of Needle Stick Injury among Housekeeping Staff

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### ABSTRACT

Infection control is an area of concern in the hospital setting. Needle stick injuries present the single greatest occupational hazard to health care workers. Health care workers should be made aware of hazards and preventive measures against needle stick injuries.

#### Objectives of the study

1. To assess the knowledge on needle stick injury among housekeeping staff.
2. To find the association between knowledge and selected baseline variables

**Methods:** A descriptive design was adopted. 100 housekeeping staff were selected using purposive sampling. A structured interview schedule was used to assess their knowledge on needle stick injury. The data was analyzed using descriptive and inferential statistics.

#### Results:

1. 75% of the subjects had good knowledge but 12% of the subjects had poor knowledge regarding needle stick injury.
2. The maximum score was found in prevention of needle stick injury (81.50%).
3. A significant association was found between knowledge and sources of information ( $p=0.017$ ).
4. Majority (81%) did not have sufficient knowledge on use of personal protective measures to prevent needle stick injury.

**Interpretation and conclusion:** The findings in the study reveal that the knowledge on needle stick injury among the housekeeping staff was good.

**Keywords:** Needle sticks injury; Housekeeping staff; Knowledge; Hospital.

### INTRODUCTION

The health-care environment contains a diverse population of microorganisms, but only a few are significant pathogens for susceptible humans. <sup>[1]</sup> In a world where it seems like health threats are increasing by the day, this list of potential viral infections and microbial ailments has remained remarkably consistent over the course of the past few decades. <sup>[2]</sup>

Healthcare is a team effort. Each healthcare provider is like a member of the team with a special role. <sup>[3]</sup> Nowadays there are doctors, nurses, nursing aids, social workers, laboratory technicians, housekeeping staff etc. One of the main functions of housekeeping in hospitals is infection control and proper handling of bio-medical waste. A carefully planned programme of waste disposal will safeguard not only personnel and patients but also the

community. Housekeeping is responsible to ensure an infection free and safe environment. [4]

Needle stick injuries present the single greatest occupational hazard to health care workers. [5] There are more than 20 blood-borne diseases, but those of primary significance to health care workers are the Hepatitis B virus (HBV), Hepatitis C virus (HCV), and Human Immunodeficiency Virus (HIV). [5] The World Health Report 2002 estimates that 2.5% of HIV, 40% of HBV and HCV cases among health care workers worldwide is the result of occupational exposures. [5]

The report which was given by United States Center for Disease Control states that about 6, 00, 000 to 8, 00, 000 needle stick injuries occur annually among 8 million health care workers in the United States that work in hospitals and other health care settings. [6] Needle stick injuries are the most common form of occupational exposures in health care settings and most likely to result in infection. [7] The WHO report estimates that 2.5% of HIV and 40% of HBV is a result of occupational exposure. Needle stick injuries are commonest form of HIV exposure in health care settings. [8]

Training the staff and developing good sharps management plans can ensure safety from sharps. A standing order procedure should be formulated regarding sharp injuries in all health care institutions. Since needle stick injuries were highest in waste handlers and nurses (33%), it underscores the need to provide compulsory education to health care workers, with respect to needle stick injuries, Health care workers should be made aware of hazards and preventive measures against needle stick injuries. [9]

Practices such as reporting needle stick injury is essential to prevent life threatening diseases such as HIV, Hepatitis B, Hepatitis C to safeguard one's life. The reviews have shown that more needle stick injury have been reported among the housekeeping staff. Owing to the lack of literacy and mismanagement in handling

sharps by housekeeping staff has caused an increase in the incidence of needle stick injuries among them. Thus the investigators felt the need to assess the knowledge on various areas of needle stick injury and thereby sought measures to educate the housekeeping staff with the help of the management.

#### ***Objectives of the study***

1. To assess the knowledge on needle stick injury among housekeeping staff.
2. To find the association between knowledge and selected baseline variables

#### **MATERIALS AND METHODS**

A descriptive study design was adopted and 100 housekeeping staffs were selected using purposive sampling. A structured interview schedule was used to assess the knowledge of needle stick injury.

#### ***Inclusion criteria***

1. Housekeeping staff who are able to speak Kannada
2. Housekeeping staff who are handling sharps.

#### ***Exclusion criteria***

1. Housekeeping staff who speak in Hindi

#### **Data collection instruments**

**Tool 1:** Baseline proforma on variables like age, gender, education, experience, place of living, income per month in rupees, history of hepatitis B vaccination, source of information related to needle stick injury, history of exposure to needle stick injury (if yes specify the type of needle).

**Tool 2:** Structured interview schedule: It consisted of 25 questions to assess the knowledge on needle stick injury among the subjects.

1. Concept and causes of needle stick injury - 8 items-32%
2. Management of needle stick injury -11 items-44%
3. Prevention of needle stick injury - 6 items-24%

#### **Data collection process**

Data was collected from the housekeeping staff at the housekeeping department after seeking written permission

from the administrator of the hospital. The samples were selected based on the sampling criteria. Purposive sampling method was adopted and 100 housekeeping staff were selected for the study. The purpose of the study was explained to them in the language they understood. A written consent was obtained and confidentiality was assured. The housekeeping staffs were interviewed using a structured interview schedule.

### Data analysis

Data was analyzed using descriptive statistics and inferential statistics.

Frequency and percentage distribution was used to summarize the baseline data and level of knowledge score of housekeeping staff regarding needle stick injury. Mean standard deviation and mean score percentages were used to assess the area wise score of knowledge on needle stick injury among housekeeping staff. Chi square test was used to find association between the selected variables and knowledge score of housekeeping staff regarding needle stick injury.

## RESULTS

**Table 1: Percentage distribution of subject's baseline characteristics**

|              |   | N = 100        |
|--------------|---|----------------|
|              | Variables   | Percentage (%) |
| <b>1</b>     | <b>Age in years</b>   |                |
|              | 18 - 27 years   | 11             |
|              | 28 - 37 years   | 22             |
|              | 38 - 47 years   | 43             |
|              | 48 - 57 years   | 24             |
| <b>2</b>     | <b>Gender</b>   |                |
|              | Male  | 46             |
|              | Female  | 54             |
| <b>3</b>     | <b>Education</b>  |                |
|              | No formal education   | 0              |
|              | 1 <sup>st</sup> - 4 <sup>th</sup> standard                  | 5              |
|              | 5 <sup>th</sup> - 7 <sup>th</sup> standard                  | 43             |
|              | 8 <sup>th</sup> - 10 <sup>th</sup> standard                 | 44             |
|              | PUC / Diploma   | 8              |
|              | Others, specify   | 0              |
| <b>4</b>     | <b>Experience</b>   |                |
|              | Less than one year  | 8              |
|              | 1 - 5 years   | 27             |
|              | 5 - 10 years  | 29             |
|              | More than 10 years  | 36             |
| <b>5</b>     | <b>Place of living</b>                                      |                |
|              | Rural   | 55             |
|              | Urban   | 45             |
| <b>6</b>     | <b>Income per month in rupees</b>                           |                |
|              | Less than Rs 6500   | 3              |
|              | Rs 6500   | 9              |
|              | Rs 6501 - Rs 10,000   | 58             |
|              | Rs 10,001 - Rs 15,000                                       | 28             |
|              | More than Rs. 15,0001                                       | 2              |
| <b>7</b>     | <b>History of Hepatitis B vaccination</b>                   |                |
|              | Not taken   | 9              |
|              | One dose  | 3              |
|              | Two doses   | 8              |
|              | Three doses / Booster doses                                 | 80             |
| <b>8</b>     | <b>Source of information related to needle stick injury</b> |                |
|              | No information  | 14             |
|              | Training  | 77             |
|              | Friends   | 2              |
|              | Clinical experience   | 7              |
|              | Any others, specify   | 0              |
| <b>9. A.</b> | <b>Have you been exposed to needle stick injury?</b>        |                |
|              | No  | 81             |
|              | Yes   | 19             |
| <b>9.B.</b>  | <b>If yes, specify</b>                                      |                |
|              | Fresh needle  | 5              |
|              | Contaminated needle   | 14             |

**Section I: Description of demographic proforma of the housekeeping staff:**

After the analysis it was found that majority (43%) of the subjects belonged to the age group of 38 - 47 years; and most of them were females (54%). Majority were educated between 8<sup>th</sup> - 10<sup>th</sup> standard (44%), had an income between Rs 6501 - 10000 (58%) and an experience of more than 10 years (36%). Among the subjects, most (55%) of them lived in the rural area and majority (80%) were vaccinated with three doses of Hepatitis B vaccination. Majority of the subjects were given training on the needle stick injury (77%) and had no exposure to needle stick injury (81%). Among the subjects who had exposure to needle stick injury, only 14% had contaminated needle stick injury. The detail information is displayed in Table 1.

**Section II: Knowledge level of the housekeeping staff regarding needle stick injury**

Data from Figure 1 reveals that 75% of the subjects had good knowledge and 13% had very good knowledge on needle stick injury. About 12% of the subjects had poor knowledge.

The data presented in Table 2 reveals the area mean percentage knowledge score of subjects. The subjects had maximum knowledge in prevention of needle stick injury.

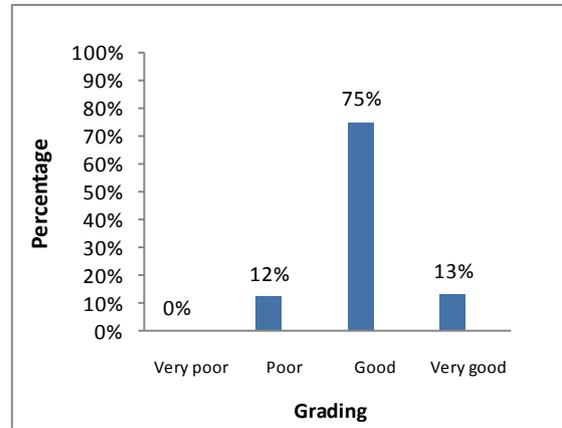


Figure 1: Bar diagram showing the percentage distribution of the samples according to the grading of knowledge score.

Table 2: Area-wise mean, standard deviation and mean percentage score of knowledge questionnaire. N=100

| Area               | Maximum score | Mean  | Standard deviation | Mean percentage |
|--------------------|---------------|-------|--------------------|-----------------|
| Concept and causes | 8             | 4.69  | 1.475              | 58.625%         |
| Management         | 11            | 6.69  | 1.612              | 60.818%         |
| Prevention         | 6             | 4.89  | 0.737              | 81.5%           |
| Maximum Score      | 25            | 16.27 | 3.824              | 65.08%          |

Table 3: Item- wise analysis of knowledge questionnaire N=100

| Sl. No | Items  | Score              |                    |
|--------|--|--------------------|--------------------|
|        |  | (0) Percentage (%) | (1) Percentage (%) |
| 1.     | Which of the following activities are at high risk for needle prick?   | 21                 | 79                 |
| 2.     | Which of the following should be done after needle prick?  | 9                  | 91                 |
| 3.     | How much time should be taken to wash the injured area?  | 33                 | 67                 |
| 4.     | Within how many hours the needlestick injury should be reported?   | 8                  | 92                 |
| 5.     | What is the maximum period of drug administration for effective post exposure prophylaxis?                   | 28                 | 72                 |
| 6.     | What is the solution used to wash hands after needlestick injury?  | 11                 | 89                 |
| 7.     | Where can you avail the first dose of post exposure prophylaxis for HIV in your hospital during day time?    | 73                 | 27                 |
| 8.     | Where can you avail the first dose of post exposure prophylaxis for HIV in your hospital during night time?  | 76                 | 24                 |
| 9.     | What are the vaccines that should be taken after needlestick injury?   | 33                 | 77                 |
| 10.    | When is the first follow up visit after the needlestick injury?  | 42                 | 58                 |
| 11.    | Which is the personal protective measure used to prevent needle prick from contaminated broken glass bottle? | 81                 | 19                 |
| 12.    | Which is the solution is used for the disinfection of contaminated broken glass bottle?                      | 10                 | 90                 |
| 13.    | Where will you dispose sharps after usage?   | 6                  | 94                 |
| 14.    | What will you do if you see a bin overflowing with various waste materials (paper, plastics and needle)?     | 2                  | 98                 |
| 15.    | How can you prevent needle prick?  | 4                  | 96                 |

**Section III: Association between knowledge score and selected demographic variables of housekeeping staff**

The ‘p’ value computed between knowledge score and source of information (p=0.017) was significant at <0.05 levels. Therefore there is significant association

between knowledge score of subjects and source of information of housekeeping staff.

#### **Section IV: Other findings**

##### **Item-wise analysis**

The responses given by the participants have been analyzed through item analysis. The items were given a score of '1' for the correct answer and a score '0' for the wrong answer. The data presented in Table 3 reveals that majority (81%) did not have sufficient knowledge on use of personal protective measures to prevent needlestick injury.

#### **DISCUSSION**

In this study, the investigator selected housekeeping staff to assess the knowledge on needle stick injury like the other investigators who have also selected housekeeping staff as subjects. [5,10-17] This infers that researchers are concerned on the knowledge of housekeeping staff on needle stick injury. Among the subjects, about 43% belonged to the age group between 38 and 47 years. 54% of the subjects were females and 46% were males which is congruent to similar other studies. [13] Majority of the subjects were educated upto 10<sup>th</sup> standard and a very few had PUC/Diploma education compared to another study [13] which revealed that majority of the subjects were illiterate. Only 8% of the subjects had less than one year of experience which indicates that the hospital is equipped with a full pledged Housekeeping Department with experienced staff.

Among the subjects, around 80% were immunized with three doses of Hepatitis B vaccination, whereas in few studies it was found that the housekeeping staff were least motivated towards vaccination with Hepatitis B. [13,16]

77% of the subjects were trained on the needle stick injury and about 14% had no information on needle stick injury. A very small percentage (2%) of the subjects received information from friends and 7% obtained information during their clinical experience. There is no literature available of staff being trained on prevention of

needle stick injury. This emphasizes that training is essential to the housekeeping staff to manage and prevent needle stick injury.

A good percentage (19%) of the subjects was exposed to needle stick injury and among them, 14% had contaminated needle stick injury and only 5% had fresh needle stick injury. Needle stick injury is a common accident among the housekeeping staff. [5,10,11,13,17]

The present study revealed that most (75%) of the subjects had good knowledge and very few (13%) had very good knowledge on needle stick injury. About 12% of them had poor knowledge. The findings are in par with other studies [5,10,12,14,15] conducted on knowledge of housekeeping staff on needle stick injury.

The findings in the study revealed that the overall knowledge scores of the housekeeping staff in all areas were good (65.08%). It is a pride to the department that the staff were well versed (81.5%) on the knowledge on prevention of needle stick injury compared to the other areas of the topic.

The findings in the study revealed that there was a significant association between knowledge score of subjects and source of information of housekeeping staff ( $p=0.017$ ). Thus prior information and training will enhance the knowledge of the housekeeping staff.

#### **CONCLUSION**

Needle stick injury occurs as a result of an accident with a needle which punctures the skin. These injuries can occur at any time while using, segregating or disposal of needles, if not disposed properly, needles can be conceal in linen or garbage and injure workers who encounter them unexpectedly. Every personnel working in a hospital setting should have an adequate knowledge regarding the risks, causes, treatment and prevention of needle stick injury. The use of personal protective equipment must be made compulsory in order to decrease the incidence of needle

stick injuries. The needle stick injuries are dangerous because they can transmit blood-borne diseases, including Hepatitis B, Hepatitis C and HIV/AIDS. This study revealed that most of the housekeeping staff employed in the hospital had good knowledge regarding needle stick injury. It should be made mandatory that all the housekeeping staff should undergo ongoing training programmes and assessments. HIC practices must be promoted in the hospital through displays. There should be continuous monitoring by the supervisors and HIC nurses. An effective HIC nurse should be assigned in all areas of the hospital and they should be introducing quality improvement practices in the work areas. Periodic audits must be conducted and quality indicators must be maintained and the information disseminated to the end-users so that their work is appreciated and at the same time remedial measures can be enforced to correct any untoward incidents.

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