



A study to identify the factors associated with nosocomial infection among health workers



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Abstract: Good health depends on the part of safe environment at practices or techniques that control or prevent transmission of infection which helps to protect the clients and health care workers from disease. Nosocomial infections, also known as hospital-acquired infections are newly acquired infections that are contracted within a hospital environment. **Objective:** 1. To identify the factors associated with nosocomial infection. 2. To associate the factors associated with nosocomial infection with demographic variable. **Materials and Methods:** The study was conducted at Shenoy Nagar Health Centre, Chennai. Descriptive research design and explorative research approach was used. Samples of 20 Multi-Purpose Health worker were selected using Non-Probability convenient sampling technique on the basis of inclusion criteria. Data was collected by using Modified infection control assessment tool. **Results :** The overall study reveals that the factors standard precautions and pre and post-operative practices were moderately associated with nosocomial infection (80%) whereas the factor labour room practices was also moderately associated with nosocomial infection but it is (75%). **Conclusion:** The study findings concluded that all the three factors standard precautions, labour room practices, pre and post-operative practices are moderately associated with hospital acquired infection. **Keywords:** Nosocomial infection, Standard precaution, Health worker.

INTRODUCTION: Nosocomial infections are commonly transmitted when hospital officials become complacent and personnel do not practice correct hygiene regularly. Also, increased use of outpatient treatment means that people who are hospitalized are more ill and have more weakened immune systems that may have been true in the past. Moreover, some medical procedures bypass the body's natural protective barriers. Since medical staff move from patient to patient, the staff themselves serve as a means for spreading pathogens. Essentially, the staff acts as vectors. One third of nosocomial infections are considered preventable. The centers for disease

control and prevention (CDC) estimates that 2 million people in the United States are infected annually by hospital acquired infection resulting in 20,000 deaths. The most common nosocomial infections are of the urinary tract, surgical site, pneumonias and blood stream infection.

NEED FOR THE STUDY: Clients in health care settings may have an increased risk of acquiring infection. Nosocomial infections result from delivery of health services in a health care facility. A hospital is one of the most likely places for acquiring an infection because it harbors a high population of virulent strains of micro-organisms that may be resistant



to antibiotic. Unfortunately many nosocomial infections are transmitted by health care workers.

According to CDC estimation is France the nosocomial infection ranged from 6.7% to 7.4% in 1990. At national level, prevalence among patients in health care facilities was 6.7% in 1996, 5.9% in 2001 and 5.0% in 2006. The rates of nosocomial infection were 7.6 % (1996), 6.4 % (2001) and 5.4 % (2006). Moreover the CDC estimated that in 2006, the most common infection in France were urinary tract infections (30.3%), pneumopathy (14.7%), infections of surgery site (14.2%), infection of the skin and mucus membrane (10.2%), other respiratory infection (6.8%), bacterial infection | blood poisoning (6.4%). It has also been estimated that nosocomial infections makes patients stay in the hospital 4.5 additional days and about 9,000 people died each year with a nosocomial infection around 2004-2005, of which about 4,200 would have survived without infection.

STATEMENT OF THE PROBLEM:

A study to identify the factors associated with nosocomial infection among health workers working in Shenoy Nagar health Centre.

OBJECTIVES

- 1) To identify the factors associated with nosocomial infection among health workers.
- 2) To associate the factors associated with nosocomial infection with demographic variable of health workers.

ASSUMPTIONS: Factors associated with nosocomial infection may vary from environment to environment.

OPERATIONAL DEFINITION

Identify: Refers to the finding of factors associated with nosocomial infection.

Factors: Refers to the variables which predispose to cause infection among patients during the stay in hospital for treatment.

Nosocomial infection: Refers to the infection that

occurs among patient during admission /stay in hospital for treatment.

Health workers: Refers to multipurpose health workers working in selected setting.

Health Centre: Refers to the institution which provides primary level of maternity health services.

DELIMITATION

- 1) The study was delimited to Shenoy Nagar health center.
- 2) The study was delimited to health workers working in Shenoy Nagar health center.

METHODOLOGY:

RESEARCH APPROACH: Research approach chosen for this study was explorative research approach.

RESEARCH DESIGN: The research design used to achieve the objective of the study is descriptive research design.

VARIABLES

Independent variable: Factors associated with nosocomial infection such as standard precautions, Labour and delivery practices and pre and post-operative practices.

Dependent variable: Nosocomial infection.

RESEARCH SETTING: The study was conducted at Shenoy Nagar health Centre, Chennai.

POPULATION

- ❖ Target population - All the Multi-purpose health workers.
- ❖ Accessible population - All the Multipurpose health workers working in Shenoy Nagar health Centre.

SAMPLE: The sample comprised of Multi-purpose health workers who were working at Shenoy Nagar health Centre.

SAMPLE SIZE: The sample comprised of 20 Multipurpose health workers who were working in Shenoy Nagar health Centre.

SAMPLE TECHNIQUE: Non-probability convenient sampling technique.



CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria

1. Health workers who were willing to participate.
2. Health workers who were working in labour ward, OT, antenatal and Post-natal ward.

Exclusion Criteria

1. Health workers who were not willing to participate.

DEVELOPMENT OF TOOL

SECTION - A: Demographic variables such as years of experience, previous knowledge regarding infection control acquired through.

SECTION - B: Modified infection control assessment tool. It consist of checklist to assess factors associated with nosocomial infection such as standard precaution - observational checklist, labour and delivery practices - observational checklist, pre and post-operative practices - observation checklist. With 10 questions under each checklist. Each correct answer carries 1 mark. Total score is 30.

SCORING KEY:

- < 50 % = highly risk
- 50 – 75 % = moderately risk
- >75 % = Low risk

The tool was validated by nursing experts.

DATA COLLECTION

PROCEDURE: A formal permission was obtained from the commissioner to collect the data. The investigator selected 20 health workers by nonprobability convenient sampling technique. The data was collected from all health workers who fulfilled the inclusion criteria by observational checklist. Brief introduction about self and the study was given and the confidentiality of the responses was assured.

DATA ANALYSIS PROCEDURE: Frequency and percentage was used to analyze the factors associated with nosocomial infection. Chi-square test was used to associate the factor associated with nosocomial

infection with demographical variables.

SECTION A

Table 1: Frequency and percentage distribution of demographic variables n=20

Demographic Variables	No.	%
Years of experience		
1-10 years	6	30
11-20 years	3	15
Above 20 years	11	55

Previous knowledge regarding infection control acquired through

Pamphlet/books	5	25
In service education	11	55
Mass media	4	20

Table 1 shows that, majority 11(55%) were experienced above 20 years and had acquired knowledge regarding infection control through in service education.

SECTION B

Table 2: Frequency and percentage distribution of factors associated with nosocomial infection n= 20

Factors	Low risk (>75%)		Moderate risk (50 –75%)		High risk (<50%)	
	No.	%	No.	%	No.	%
Standard precaution	0	0	16	80	4	20
Labour and delivery practices	0	0	15	75	5	25
Pre and postoperative practices	3	15	16	80	1	5

Table 2 shows that regarding standard precaution and pre and postoperative practices factor 16(80%) was moderately associated with nosocomial infection. Considering labour and delivery practices 15(75%) was moderately associated with nosocomial infection.



SECTION - C

Table 3: Association of level of standard precaution factor with demographic variables n=20

Demographic Variables	Low (>75%)		Moderate risk (50 -75%)		High (<50%)		Chi-square value
	No.	%	No.	%	No.	%	
Years of experience							$\chi^2 =$
1-10 years	0	0	5	25	1	5	0.411
11-20	0	0	2	10	1	5	d.f= 2
Above 20	0	0	9	45	2	10	N.S
Previous knowledge regarding infection Control acquired through							$\chi^2 = 3.06$
Pamphlet/books	0	0	4	20	1	5	d.f= 2
In service education	0	0	10	50	1	5	N.S
Mass media	0	0	2	10	2	10	

Table 3 shows that there is no significant association between the standard precaution factors with demographic variables.

Table 4: Association of level of Labour and delivery practices factor with demographic variables n=20

Demographic Variables	Low (>75%)		Moderate risk (50 -75%)		High (<50%)		Chi-square value
	No.	%	No.	%	No.	%	
Years of experience							$\chi^2 =$
1-10 years	0	0	6	30	0	0	6.351
11-20	0	0	3	15	0	0	d.f= 2 S
Above 20	0	0	6	30	5	25	
Previous knowledge regarding infection control acquired through							$\chi^2 = 4.74$
Pamphlet/books	0	0	2	10	3	15	d.f= 2
In service education	0	0	10	50	1	5	N.S
Mass media	0	0	3	15	1	5	

Table 4 shows that there is a significant association between the labour and delivery practices factor with the demographic variable years of experience.

Table 5: Association of level of pre and postoperative practices factor with demographic variables n=20

Demographic Variables	Low (>75%)		Moderate risk (50 -75%)		High (<50%)		Chi-square value
	No.	%	No.	%	No.	%	
Years of experience							$\chi^2 =$
1-10 years	1	5	5	25	0	0	1.835
11-20	1	5	2	10	0	0	d.f= 4
Above 20	1	5	9	45	1	5	N.S
Previous knowledge regarding infection control acquired through							$\chi^2 =$
Pamphlet/books	0	0	5	25	0	0	1.589
In service education	2	10	8	40	1	5	d.f= 4
Mass media	1	5	3	15	0	0	N.S

The Table 5 shows that there is no significant association between the pre and post-operative practices factor with demographic variables.

RECOMMENDATIONS

1. A similar study can be conducted on a larger sample to generalize the findings.
2. A similar study can be done to find the knowledge, attitude and practice of the nurses towards the prevention of nosocomial infection.

CONCLUSION: The study concluded that standard precaution, pre and post-operative practices factor (80%), and labour and delivery practices (75%) were moderately associated with nosocomial infection. So all the three factors were associated with hospital acquired infection.

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