

A Study to Assess the Knowledge and Practice Regarding Occupational Blood and Body Fluid Exposure among Staff Nurses in Selected Hospitals at Lucknow

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ABSTRACT

Background- Occupational exposure is the exposure to the blood and body fluids. The mode of exposure includes percutaneous, mucocutaneous and non intact skin exposure. Occupational blood and body fluid (BBF) exposures place healthcare workers (HCW) at risk for numerous blood-borne infections, most importantly human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV).¹ A Descriptive Correlational Study was conducted to assess the knowledge and practice regarding occupational blood and body fluid exposure among staff nurses in selected hospitals at Lucknow. The Objectives of the study were to assess the knowledge and practice of staff nurses regarding occupational blood and body fluid exposure. Find determine the correlation between the level of knowledge and practice and find out association of knowledge and practice with selected socio demographic variables regarding occupational blood and body fluid exposure. **Methodology-** The research approach adopted for the study is non-experimental approach. The researcher selected 100 staff nurses worked in two selected Hospital, Lucknow using convenience sampling technique. **Result-** The results revealed that majority of subjects 60% were having moderately adequate knowledge, 23% had adequate knowledge and 17% had inadequate knowledge. Among 100 staff nurses 39% had inadequate practice, 46% had moderately adequate practice and 15% had adequate practice. The Karl Pearson's coefficient correlation formula was used and it showed that $r = 0.898$ with statistically evidenced positive correlation which is significant at 0.01 level. The association between level of knowledge and practice with socio demographic variables were identified by using Chi square test. The demographic variables such as age, professional qualification, years of experience in nursing were found to be significant with level of knowledge. The demographic variables such as age, professional qualification, years of experience in nursing were found to be significant with level of practice. **Conclusion-** This study finding motivates the staff nurses to upgrade knowledge and improve practice regarding occupational blood and body fluid exposure.

KEYWORDS: Knowledge, Practice, Occupational blood and body fluid exposure, Staff nurse

INTRODUCTION

Hospital is a health industry where people with various diseases are cared for and major group of

people who provide health care. Health and safety of the workers within the work place is the major

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concern of the millennium that has emerged with the rapid technological advancement in every field of practice.

Occupational Blood and body fluid exposure continues to be the major worldwide public health problem, despite advances in our understanding and control of these infections. Nurses are the major health care provider in the hospital and they are more potential to exposure with blood and body fluid.

Transmission of HBV, HCV, and HIV after mucous membrane or skin exposure to blood has also been reported and the risk of transmission of these pathogens through mucocutaneous exposure is considered lower than the risk associated with a percutaneous exposure (CDC 2000).¹

Universal precautions are intended to prevent parenteral, mucous membrane and non- intact skin exposures of health-care workers to blood borne pathogens. Personal hygiene thus becomes fundamental principle in observing universal precautions.

Immunization with HBV vaccine is recommended as an important adjunct to universal precautions for health care workers who have exposures to blood. Clinical applications of universal precautions are important for every health care professional. There should take precautions to prevent injuries caused by needles, scalpels, and other sharp instruments or devices during procedures. After blood and body fluid exposure, decontamination of the blood splash is very important to avoid transmission of the blood borne pathogens. Avoiding occupational blood and body fluid exposures is the primary way to prevent transmission of pathogens in health-care settings. Immunization and post exposure management are integral components of a complete program to prevent infection following blood borne pathogen exposure and are important elements of workplace safety (The U.S. Public Health Service (PHS). Post-exposure prophylaxis refers to the set of services that are provided to manage the specific aspects of exposure to infection and to help prevent infection in a person exposed to the risk of getting infected by HIV, HBV, and HCV and also done follow-up(WHO 2007).²

Occupational blood and body fluid (BBF) exposures place healthcare workers (HCWs) at risk for numerous blood-borne infections, most importantly human immunodeficiency virus (HIV), Hepatitis B virus (HBV), and hepatitis C virus (HCV). Approximately three million percutaneous exposures to blood-borne pathogens occur annually among 35 million HCWs worldwide. These injuries are

estimated to result in approximately 16,000 HCV, 66,000 HBV, and 200 HIV infections. Over 90% of these infections occur in low- income countries and most are preventable.²⁷ An European survey of Needle stick injury (NSI), found that nurses are exposed more commonly (91%) than doctors (6%) or phlebotomists (3%).³

A study revealed that 70% of medical, 74% of dental, and 72% of nursing students have had at least one sharps-related injury since beginning of their clinical education. On which, 75 – 85% of these students did not report their injuries.⁴

All healthcare workers face a wide range of hazards on the job, including blood and body fluid exposure. In 2001, U.S. hospitals reported 293,600 nonfatal occupational injuries and illnesses among their personnel. Annual exposure prevalence rates range from >10% to 44%, depending on the occupational subgroup. Every year, approximately 600,000–800,000 occupational needle stick injuries occur in the United States.⁵ Nurses are important group of health care providers who render support to health care. They are also expected to impact new ideas to their practice all of which is expected to bring improvement to the service. It is with this context that this study is conducted with the aim of knowing the level of knowledge regarding occupational blood and body fluid exposure as well as their level of practice.

Statement of the Problem-

A study to assess the knowledge and practice regarding occupational blood and body fluid exposure among staff nurses in selected hospitals at Lucknow.

Objectives of the Study-

- To assess the level of knowledge of staff nurses regarding occupational blood and body fluid exposure.
- To identify the practice of staff nurses regarding occupational blood and body fluid exposure.
- To determine the correlation between the level of knowledge and practice of staff nurses regarding occupational blood and body fluid exposure.
- To find out the association between the levels of knowledge regarding occupational blood and body fluid exposure and selected socio demographic variable among staff nurses.
- To determine the association between the practice regarding occupational blood and body fluid exposure and selected socio demographic variable among staff nurses.

Hypothesis:-

H1: There is a significant correlation between the level of knowledge and practice of staff nurses

regarding occupational blood and body fluid exposure.

H2: There is a significant association between the level of knowledge and selected socio demographic variables among staff nurses.

H3: There is significant relationship between the level of practice and selected socio demographic variables among staff nurses.

Methodology-

Research approach- Quantitative research approach was used for the research study.

Research design- Descriptive correlational research design.

Setting of the study- Kozhy's hospital and sree venketashwara hospital at Lucknow.

Research variables- Knowledge and practice of staff nurses Regarding Occupational Blood and Body Fluid Exposure.

Demographic variables- The socio demographic variable include age, gender, professional qualification, year of experience in nursing, specified department, history of vaccination, history of accidental exposure of blood and body fluid, exposure to continuing or in service education regarding occupational blood and body fluid exposure.

Target population- The target population of the study is staff nurses working in the hospitals.

Accessible population- The accessible population consists of staff nurses working in the research setting and is willing to participate in the study.

Sample size: The sample size of the present study was 100 staff nurses in selected hospitals at Lucknow, Uttar Pradesh.

Sampling Technique- In this study non-probability convenience sampling technique was used to select 100 samples who met the inclusion criteria. The investigator has chosen 100 staff nurses who were available at the time of data collection according to the inclusion criteria of the study.

Description of Tool-

Section I: - socio-demographic variables- This section consists of 8 items describing the socio-demographic variables of staff nurses such as age, gender, professional qualification, years of experience in nursing, specified department, history of vaccination, history of accidental exposure of blood and body fluid and exposure to continuing or in service education regarding occupational blood and body fluid exposure.

Section II- Knowledge Questionnaire-

This section consists of 24 multiple choice questions to assess the level of knowledge of staff nurses regarding occupational blood and body fluid exposure. Each item has 1 correct response and 3 wrong responses. Each correct response is awarded with score 1 and incorrect response with score 0. The total possible correct responses were 24 giving rises to a maximum score of 24.

The level of knowledge was classified as:

- Inadequate knowledge: Score 0-8
- Moderately adequate knowledge: Score 9-16
- Adequate knowledge: Score 17-24

Section III: Practice Questionnaire

This section consisted of 20 items to assess the level of practices of staff nurse regarding occupational blood and body fluid exposure using 3 point Checklist namely "never", "sometimes" and "always". The score given was 0, 1, and 2 respectively. Each item has maximum score of 2 points and minimum score of zero point. The total maximum score was 40.

The level of practices is classified as:

- Inadequate practice: Score 0-19
- Moderately adequate practice: Score 20-29
- Adequate practice: Score 30-40

Reliability- The feasibility of the entire study was estimated by Spearman Brown prophency formula ($r = 0.83$).

Ethical Consideration- The formal permission was obtained from the concerned authority of each hospitals and verbal consent was obtained from the samples to conduct study.

Data collection procedure- The data collection was scheduled. Before the data collection, the investigator obtained the formal permission from the head of the Department of two selected hospitals at Lucknow.

The investigator selected 100 Staff Nurses from two hospitals who met the inclusion criteria for data collection using convenience sampling technique. Investigator selected 50 staff nurses from each Hospital which contain 20 samples from each department. Every day 4-5 samples participated in the study. The investigator met each subject individually and explained the purpose of the study, the cooperation required and the anonymity assured before obtaining verbal consent. The data was collected using structured self administered questionnaire. The subjects were instructed to go through the tool and were asked to complete it. Each subject had taken 45 minutes to complete the questionnaire. At the end of the data collection the investigator thanked the participants for their cooperation.

Plan for data analysis- The data analysis was planned on the basis of objectives of the study. The data obtained is analyzed by using descriptive and inferential statistics.

Result-

Section-I: Description of socio demographic variable of staff nurses.

Table 1: Frequency and percentage distribution of staff nurses according to their demographic variables.

n=100		
Demographic variable	f	%
Age		
<= 25 years	39	39
26- 30 years	46	46
31 years and above	15	15
Gender		
Male	10	10
Female	90	90
Professional qualification		
Diploma	83	83.0
Graduate	17	17
Total years of experience in nursing		
≤ 5 yr.	39	39
6-10 yr.	46	46
11 and above	15	15
Specified department		
Operation theater	20	20
Emergency/causality	20	20
ICU	20	20
Medical wards	20	20
Surgical wards	20	20
Vaccinated against hepatitis B		
Vaccinated	97	97
Not vaccinated	3	3
Accidental Exposure To Blood And Body Fluid		
No history	25	25
Needle stick injury	45	45
Mucocutaneous exposure	16	16
Non intact skin	14	14
Exposure to continuing or in service education		
Yes	0	0
No	100	100

SECTION-II: Assessment of the level of knowledge among staff nurses regarding occupational blood and body fluid exposure

Table 2: Percentage distribution of level of knowledge regarding occupational blood and body fluid exposure

Level of knowledge	f	%
Adequate knowledge: Score 17-24	23	23
Moderately adequate knowledge: Score 9-16	60	60
Inadequate knowledge: Score 0-8	17	17
Total	100	100

Table 2 reveals that the distribution of level of knowledge of staff nurses regarding occupational blood and body fluid exposure. Out of 100 subjects, 60% of them had moderately adequate knowledge, 23% of subjects had adequate knowledge and 17% had inadequate knowledge.

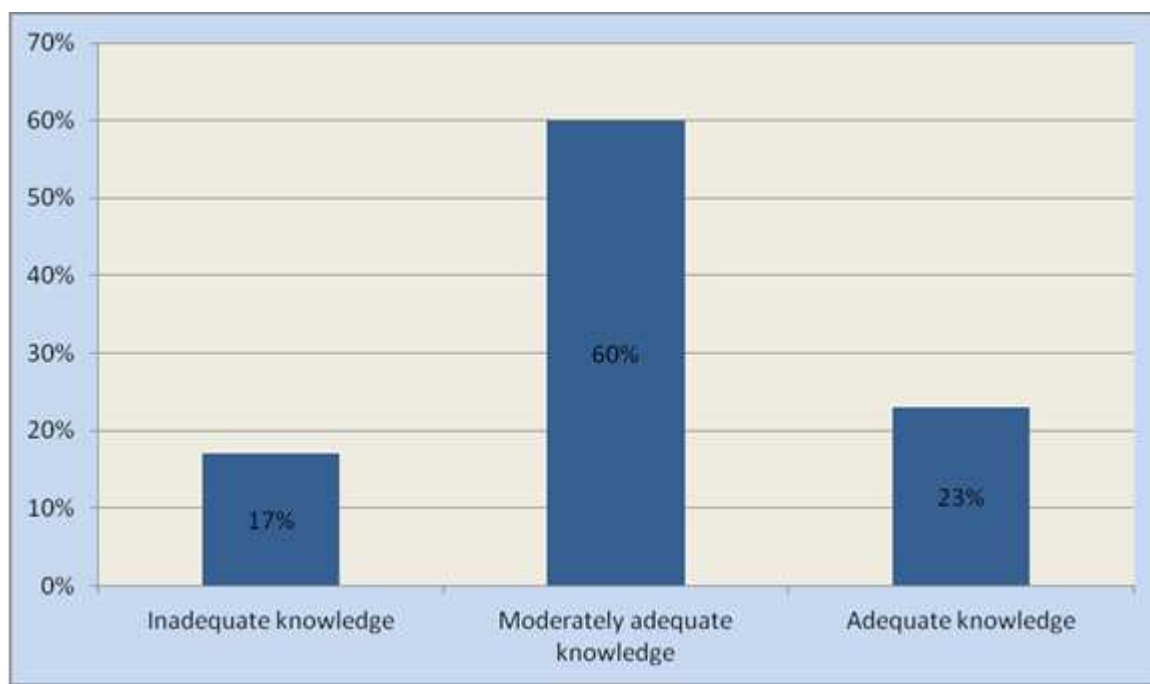


Figure-1: Percentage distribution of level of knowledge regarding occupational blood and body fluid exposure.

SECTION-III: Assessment of the level of practice among staff nurses regarding occupational blood and body fluid exposure.

Table 3: Percentage distribution of the level of practice among staff nurses regarding occupational blood and body fluid exposure

Level of knowledge	f	%
Adequate knowledge: Score 30-40	15	15
Moderately adequate knowledge: Score 20-29	46	46
Inadequate knowledge: Score 0-19	39	39
Total	100	100

Table-3 reveals that the distribution of level of practice of staff nurses regarding occupational blood and body fluid exposure. Out of 100 subjects, 15% of them had adequate practice, 46% of subjects had moderately adequate practice and 39% of them had inadequate practice.

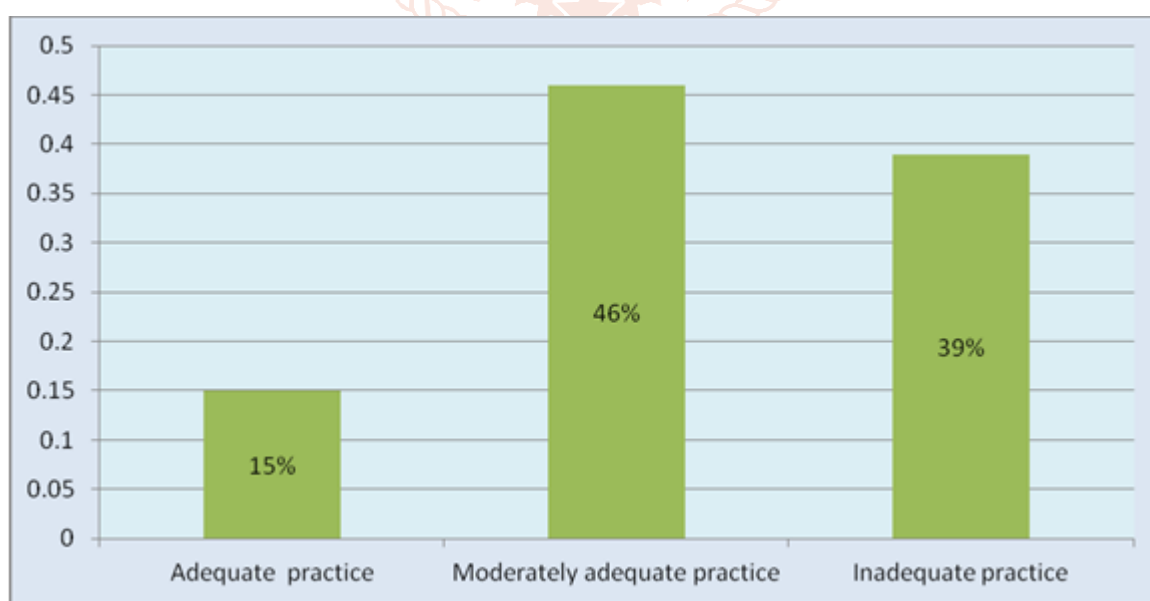


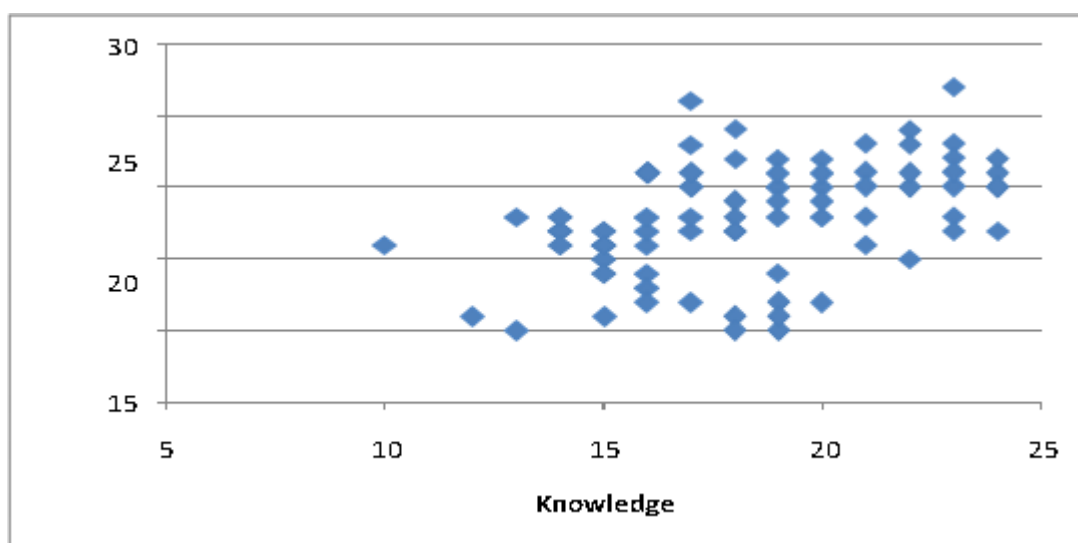
Figure-2: Percentage distribution of the level of practice among staff nurses regarding occupational blood and body fluid exposure

SECTION-IV: Correlation of knowledge and practice among staff nurses regarding occupational blood and body fluid exposure**Table-4: Correlation of knowledge and practice among staff nurses regarding occupational blood and body fluid exposure.**

		Overall knowledge	Overall practice
Overall knowledge	Pearson Correlation	1	.898**
	Sig. (2-tailed)		.000
	N	100	100
Overall practice	Pearson Correlation	.898**	1
	Sig. (2-tailed)	.000	
	N	100	100

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4 shows that there is a positive correlation between knowledge and practice hence H1 is accepted. The Pearson's co-efficient value $r = 0.898$ with statistically evidenced positive correlation which is significant at the 0.01 level (2-tailed).

**Figure-3: Correlation between knowledge and practice****SECTION-V: Association of selected socio demographic variables with knowledge of staff nurse regarding occupational blood and body fluid exposure.****Table-5: Distribution of association of selected socio demographic variables with knowledge of staff nurse regarding occupational blood and body fluid exposure.**

SR NO	Variables		Overall Knowledge		Chi square		
			Median and Below	Above Median	Cal	Tab	DF
1	Age in years	<= 25	39	0	9.825*	5.991	2
		26 – 30	12	34			
		31+	0	15			
2	Gender	Female	41	49	0.0010 NS	3.841	1
		Male	10	0			
3	Professional qualification	Diploma	34	49	9.1616*	3.841	1
		Graduate	17	0			
4	Experience	Less than 5 year	39	0	9.825*	5.991	2
		6-10 year	12	34			
		11 and above	0	15			
5	Specified department	OT	10	10	.9969 NS	9.488	4
		Emergency/ causality	10	10			
		ICU	10	10			
		Medical ward	10	10			
		Surgical ward	11	9			

6	vaccinated against hepatitis B	vaccinated	48	49	.0847 NS	3.841	1
		Not vaccinated	3	0			
7	History of accidental exposure to blood and body fluid	No	12	13	.6536 NS	7.815	3
		Needle stick injury	26	19			
		Mucocutanouse exposure	7	9			
		Non intact skin	6	8			
8	CNE programs	Yes	0	0	0.00 NS	3.841	1
		No	51	49			

NS is not significant * is significant DF is degree of freedom

The data presented in table 5 represents the association between selected socio demographic variables and knowledge level of staff nurses regarding occupational blood and body fluid exposure. The Chi square test was used to find the association between knowledge and selected demographic variables. The demographic variables such as age, professional qualification, years of experience in nursing were found to be significant.

SECTION-VI: Association of selected socio demographic variable with practice of staff nurse regarding occupational blood and body fluid exposure.

Table-6: Distribution of association of selected socio demographic variables with practice of staff nurse regarding occupational blood and body fluid exposure.

SR NO	Variables		Overall Practice		Chi square		
			Median and Below	Above Median	Cal	Tab	DF
1	Age in years	<= 25	39	0	9.825*	5.991	2
		26 – 30	12	34			
		31+	0	15			
2	Gender	Female	41	49	0.0010 NS	3.841	1
		Male	10	0			
3	Professional qualification	Diploma	34	49	9.1616*	3.841	1
		Graduate	17	0			
4	Experience	Less than 5 year	39	0	9.825*	5.991	2
		6-10 year	12	34			
		11 and above	0	15			
5	Specified department	OT	10	10	.9969 NS	9.488	4
		Emergency/ causality	10	10			
		ICU	10	10			
		Medical ward	10	10			
		Surgical ward	11	9			
6	vaccinated against hepatitis B	vaccinated	48	49	.0847 NS	3.841	1
		Not vaccinated	3	0			
7	History of accidental exposure to blood and body fluid	No	12	13	.6536 NS	7.815	3
		Needle stick injury	26	19			
		Mucocutanouse exposure	7	9			
		Non intact skin	6	8			
8	CNE programs	Yes	0	0	0.00 NS	3.841	1
		No	51	49			

NS is not significant * is significant DF is degree of freedom

The data presented in table 6 reveals the association between selected socio demographic variables and practice of staff nurses regarding occupational blood and body fluid exposure. The Chi square test was used to find out the association between practice and selected demographic variables. The demographic variables such as age, professional qualification, years of experience in nursing were found to be significant.

Nursing Implication-

Based on the findings of the study the following implications are stated:

Nursing practice

- Nurses play a vital role in creating major impact in the health by assessing knowledge and practice. Nurses are at a greater risk of sustaining sharps

injury. They carry out the greatest amount of direct patient care and undertake the majority of procedures that involve sharp devices, such as injections, manipulation and removal of intravascular devices

- Nurses can adopt measures and create awareness by understanding their own knowledge and practice level.
- In the field of nursing, staff nurses can intervene effectively to create awareness regarding occupational blood and body fluid exposure.
- Nurses should try to identify the problems and attend supportive and educative service to overcome the situation which helps in the better acceptance and implication of desirable practice.

Nursing Education

- Nursing curriculum is mainly theory based and little is focused on practice, there is always a gap in between. Hence more emphasis should be given to conduct in service education program to upgrade the knowledge of the nurses, which may help to plan effective care.
- Nurse educator can focus on the importance of staff nurse's knowledge and how to help them to create awareness and to increase practical efficiency.

Nursing Administration

- It is important for the nurse administrator to facilitate programs to improve the knowledge and practice of nurses on occupational blood and body fluid exposure. Nurses as administrators should take great interest in formulating the policies and procedures for practice. The administrator should plan and organize educational program for nursing personnel, in order to prepare them to provide quality care and maintain their own health.
- The nursing administrator should see that the aspect of health promotion. Necessary administration support should be provided to conduct health education or written information to all staff nurses. Health education material such as leaflets & pamphlets should be made available to the nurses. Nurse administrators can plan for in service and continuing nursing education regarding occupational blood and body fluid exposure.

Nursing Research

- A profession seeking to improve the practice of its members and to enhance its professional stature strives for the continual development of a relevant body of knowledge. Professional

contribution in nursing are convinced of the importance of nursing research as a major contribution of meeting the health on staff nurses.

- By pursuing research, the nurse could contribute towards enriching the knowledge about the efficiency of nursing intervention in relieving their difficulties. In western countries many research studies have been done regarding occupational blood and body fluid exposure. But in India, very few studies only have been done on knowledge and practice. So the nursing leaders can motivate nurses to do more research in this aspect.

Recommendations for the study

On the basis of the findings of the study it is recommended that:

- Similar study can be conducted by administering a self instructional module among staff nurses.
- A similar study can be conducted on larger population to generalize the findings.
- A comparative study can be done to assess the level of knowledge and practice of staff nurses working in private and government hospital.
- A similar study can be conducted on assessment of attitude of staff nurses on occupational blood and body fluid exposure
- A study can be conducted to assess the incidence of occupational blood and body fluid exposure.

Limitations of the study:

- Samples were limited to 100 staff nurses.
- The period of data collection was limited to four weeks.

Conclusion-

In this study, a total of 100 subjects were assessed for the knowledge and practice regarding occupational blood and body fluid exposure. The relationship between knowledge and practice, association between socio demographic variables with knowledge and practice were also determined among these subjects.

It was noticed that majority 60 percent had moderately adequate knowledge on occupational blood and body fluid exposure and 39 percent had inadequate practice. There is a relationship between knowledge and practice of staff nurses regarding occupational blood and body fluid exposure. There is a significant association between selected demographic variable with knowledge and practice.

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