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## Knowledge regarding hospital acquired infections among nursing students

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### Abstract

The current study aimed to assess the knowledge of hospital acquired infections among nursing students of selected Nursing college of Punjab. The main objectives of this study included: To assess the level of knowledge regarding hospital acquired infections among nursing students of Selected Nursing College of Punjab. To find out the association of knowledge regarding hospital acquired infections among nursing students of selected Nursing College of Punjab with their socio- demographic variables. A quantitative research approach using descriptive research design was adapted for this study. The study was carried out with 150 Nursing Students selected by using convenient sampling technique at selected Nursing College, Punjab. Demographic Performa and Structured knowledge questionnaire were used to collect the data. The finding of the present study revealed that majority of Nursing students (70.7%) lied under Excellent and Good knowledge categories (i.e. 24% & 46.7% respectively). 19.3% nursing student have average knowledge and only 10% nursing student have below average knowledge.

**Keywords:** Knowledge, hospital acquired infections, nursing students

### 1. Introduction

*“Infection are most often transmitted from patient to patient on the hands of health care workers.....”*

*(Dr. William Jarvis)*

Hospital acquired infections are defined as an infection acquired during or as a result of hospitalizations. The patients neither have these infections nor are incubating these infections on admission. Generally, a patient who develops an infection after 48 hours of hospital admission is considered to have a hospital acquired infections. Some hospital acquired infections may not as disease immediately and can manifest event after discharge.

Hospital acquired infections are amongst the most common complications of hospital care, leading to high morbidity and mortality. While WHO estimates about 7-12% HAI burden in hospitalized patients globally, the figure from India are alarming, with an incidence rate varying from 11% to 83% for different kinds of Hospital Acquired Infections.

A survey amongst 55 hospitals of 14 countries representing the 4 WHO regions (Europe, Eastern Mediterranean, South-East Asia and Western Pacific) showed that 8.7% of hospital patients had hospital acquired infection <sup>[1]</sup>.

Developing countries were reported to have up to 20 times the risk of contracting a hospital acquired infection compared with developed countries. Thus, spread of infection serves as a major source of worry for managers in health care practices, particularly in developing countries where the health care system is already overstretched. Hundreds of millions of patients are affected by HAI worldwide each year, leading to significant mortality and financial losses also. The endemic burden of HAI is also significantly higher in low- and middle-income than in high-income countries, in particular in-patients admitted to intensive care units <sup>[2]</sup>.

Patients admitted to the hospital wards are susceptible to hospital acquired infection. Risk factors for such infections vary between different specific site infections, because hospital environments are complex. Previously conducted researches indicated that, longer hospital stays, gender, intravascular catheter, surgery since admission, intubation, mechanical

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ventilation, age of patient, typed of hospital, urinary catheter was some of the risk factors for hospital acquired infections [3]. Hospital acquired infections may cause by many different pathogens. The infecting organisms vary among different patient population, different health care settings, different facilities and different countries. Common microorganisms that may cause infection are: bacteria's (staphylococcus aureus, pseudomonas, Escherichia coli), viruses (Hepatitis B and C viruses, rotavirus, herpes simplex virus), parasites and fungi (Candida Albicans, aspergillums, cryptosporidium). These organisms can be transferred from one patient to another (cross infection). They can be a part of patient's own flora (endogenous infection). These infections are associated with an increase in crude mortality, length of stay in ICU and hospital.

Hospital acquired infections are determined by evaluation of sign and symptoms of infection. By examination of wounds and catheter entry sites for redness, swelling or the presence of pus or an abscess. Complete physical examination and review of underlying illness, laboratory test including CBC, urine analysis and review of all procedures that might have led to infection [4].

Hospital acquired infections can be prevented by limiting transmission of organisms between patients in direct patient care through adequate hand washing and glove use and appropriate aseptic practices, isolation strategies, sterilization and disinfection practices. By protecting patients with appropriate use prophylactic antimicrobials, nutrition and vaccinations, minimizing invasive procedure and promoting optimal antimicrobial use.

Meticulous infection control protocols are required to prevent health care associated hospital acquired infections. Moreover, to prevent the spread of infection in clinical setting health care workers need more knowledge and resources to comply with infection control protocols.

## 2. Methodology

A quantitative research approach using descriptive research design was adapted for this study. The study was carried out with 150 Nursing Students selected by using convenient sampling technique at selected Nursing College, Punjab. Demographic Performa and Structured knowledge questionnaire were used to collect the data. The information of knowledge was collected by paper and pencil techniques. Demographic Performa consisting of 6 items: age, education status, gender, marital status, Previous knowledge regarding hospital acquired infections. Structured knowledge questionnaire consisting of 30 items covering the following domains: Concept, Causes/Risk factors, Sources/Mode of transmission, Sign and Symptoms, Diagnostic Evaluations, Treatment and Preventions.

Content validity of the tools was established by the suggestion of experts. Internal consistency of the questionnaire was computed by using KR20 and found to be reliable (0.82). Ethical consideration: Formal administrative approval was obtained from the Principal of selected College of Nursing, Punjab. Informed written Consent was

taken from the participants.

## 3. Results

**Table 1:** Frequency and Percentage distribution of nursing students in terms of selected socio demographic variables, N=150

Socio demographic variables	Frequency (f)	Percentage (%)
<b>Age (in years)</b>		
a) 18-20	94	62.7
b) 21-23	54	36
c) 23-25	2	1.3
<b>Educational status</b>		
a) B.sc. (N) 1 Year	44	29.3
b) B.sc. (N) 2 Year	51	34
c) B.sc. (N) 3 year	24	16
d) B.sc. (N) 4 year	31	20.7
<b>Religion</b>		
a) Hindu	51	34
b) Sikh	95	63.4
c) Christian	2	1.3
d) Muslim	2	1.3
<b>Gender</b>		
a) Male	9	6
b) Female	141	94
<b>Marital status</b>		
a) Unmarried.	150	100
b) Married.	0	0
c) Divorced	0	0
d) Widow	0	0
<b>Previous knowledge regarding hospital acquired infection</b>		
a) Books/Mass Media	126	84
b) Friends	5	3.3
c) Hospital health personnel	16	10.7
d) Others	3	2

**Table 2:** Frequency and percentage distribution of nursing students in terms of level of knowledge regarding hospital acquired infections, N=150.

Level of knowledge	Range	Score	Frequency (f)	Percentage (%)
Excellent	>75%	>22	36	24
Good	61-75%	19-22	70	46.7
Average	50-60%	15-18	29	19.3
Below Average	<50%	<15	15	10

**Table 3:** Area wise Mean, Mean, Percentage and Ranking of knowledge score of nursing students regarding hospital acquired infections.

Area of knowledge	Maximum score	Mean	Mean%	Ranking
Concept	5	3.9	78%	I
Cause/Risk Factors	6	3.42	57%	VI
Sources/Mode of Transmission	4	2.22	55.5%	VII
Sign and Symptoms	4	2.4	60%	V
Diagnostic Evaluation	3	2.32	77.3%	III
Treatment	4	2.45	61.2%	IV
Prevention	4	3.11	77.7%	II

**Table 4:** Chi square values showing the association between knowledge score of nursing students with selected sample characteristics, N=150.

S. No.	Characteristics	Knowledge Score				DF	$\chi^2$	Table value
		Excellent	Good	Average	Below Average			
1	<b>Age(in years)</b>							
	18-20	12	50	19	13			
	21-23	25	19	9	1	6	25.728*	12.59
	23-25	1	0	1	0			
2	<b>Educational status</b>							
	B.sc. (N) 1 Year	2	23	8	11			
	B.sc. (N) 2 Year	8	27	14	2	9	51.162*	16.92
	B.sc. (N) 3 year	16	6	2	0			
	B.sc. (N) 4 year	12	13	5	1			
3	<b>Religion</b>							
	Hindu	12	22	12	5			
	Sikh	25	45	16	9	9	NS	16.92
	Christian	0	1	1	0			
	Muslim	1	1	0	0			
4	<b>Gender</b>							
	Male	0	7	2		3	5.462NS	7.82
	Female	38	62	27	14			
5	<b>Previous knowledge regarding hospital acquired infections</b>							
	Books/Mass Media	33	57	23	11			
	Friends	0	2	1	2	9	11.376NS	16.92
	Hospital health personnel	5	9	4	0			
	Others	0	1	1	1			

NS= Non Significant

\* = 0.05 Level of significance

#### 4. Discussion

The finding of the present study revealed that majority of Nursing students have Good knowledge (46.7%) followed by excellent knowledge (24%), 19.3% nursing student have average knowledge and only 10% nursing student have below average knowledge. Improvement in the knowledge regarding hospital acquired infections need to be done. For this purpose, seminars and workshops should be arranged on regular basis.

The present study supported by the study conducted by Mrs. Manisha gadade *et al.* (2018). The study findings revealed that 33% of b.sc nursing students having good knowledge regarding hospital acquired infections, 64% students having average knowledge regarding hospital acquired infections and 3% students having a poor knowledge regarding hospital acquired infections [5].

Another study conducted by Sodhi KI *et al.* on intensive care nurses provide similar results, the study concluded that the infection control knowledge among the nurses was fairly good; however, there is still a wide scope of improvement with regular educational programs and training [6].

Another study conducted by Masavka S.P. *et al.* (2018) concluded different results. The study has found that there is not adequate knowledge regarding hospital acquired infections among B.sc. Nursing students. It has revealed that no percentages among B.Sc. nursing students have excellent knowledge regarding hospital acquired infections. Only 0.89%. Have very good knowledge and 6.25% have good knowledge. 63.39% B.Sc. Nursing students have below average knowledge regarding hospital acquired infections [7].

#### 5. Conclusion

The study concluded that most of the nursing students had good knowledge i.e. 46.7%, followed by excellent knowledge level i.e. 24%. Only 19% of student had average and 10% students had below average knowledge.

#### 6. Recommendations

The study can be replicated on a larger sample in different setting for making broad generalization. A comparative study can be conducted to assess the knowledge regarding hospital acquired infections among school of nursing and college of nursing students.

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