

A study to assess the level of knowledge and practice regarding nosocomial infections among Healthcare workers of GMCH-32.

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Abstract:

Introduction : Nosocomial infections also referred to as Healthcare associated infections, these are the infections acquired during the process of receiving health care that were not present at the time of admission. Present study was conducted to assess the knowledge and practice regarding nosocomial infections among healthcare workers.

Material and Methods : A descriptive study design was considered for the study and 90 healthcare workers were recruited by convenient sampling techniques. A prevalidated self structured questionnaire was used to assess the knowledge and WHO Handwashing checklist was used to assess the practice. Research data was collected during 6 months time period .

Result: The findings of the study revealed that maximum healthcare workers (95.56%) had good knowledge with (4.44%) had average knowledge with no one having poor knowledge. Maximum healthcare workers(88.89%) had good practice (11.11%) having poor practice.

Conclusion: The following conclusions were drawn from the study. In the present study 90 subjects participated. The findings of the study reveal that the knowledge of health Care workers regarding infections was 95.6% good ,4.4% average and 0.0% poor for 90 samples. The analysis of the research shows that majority of demographic variables like Age, residence, type of family, religion, educational status of parents and monthly income of family had no statistical significance at the level of $p < 0.05$.

KEYWORDS:

Knowledge - Knowledge refers to the information and facts obtained from healthcare workers on the aspects such as causes ,effects , treatment and prevention regarding nosocomial infection.

Nosocomial infections - Nosocomial infections can be defined as those occurring within 48 hours of hospital admission, 3 days of discharge or 30 days of an operation.

Practice - Practice is the actual application of knowledge regarding nosocomial infections.

Healthcare worker - Healthcare workers are those who deliver care and services to the ailing directly as doctors and nurses or indirectly as aiders, helpers, laboratory technicians or even medical waste handlers.

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I. Introduction:

Nosocomial infections also referred to as hospital acquired infections (HAI), are infections acquired during the process of receiving health care that were not present during the time of admission. They may occur in different areas of healthcare delivery, such as in hospitals, long-term care facilities, and ambulatory settings, and may also appear after discharge. HAIs also include occupational infections that may affect staff.¹

Infection occurs when pathogens spread to a susceptible patient host. In modern healthcare, invasive procedures and surgery, indwelling medical devices, and prosthetic devices are associated with these infections. The etiology of HAI is based on the source or type of infection and the responsible pathogen, which may be bacterial, viral, or fungal.²

HAI is the most common adverse event in health care that affects patient safety. They contribute to significant morbidity, mortality, and financial burden on patients, families, and healthcare systems. The emergence of multi-drug resistant organisms is another complication seen with HAI. ³

HAI affects 3.2% of all hospitalized patients in the United States, 6.5% in the European Union/European Economic Area, and worldwide prevalence is likely much higher. The burden of HAIs worldwide is unknown owing to the lack of surveillance systems for HAIs. However, there has been a great effort by infection prevention and control programs to develop surveillance systems and infection control methods. ⁴

Responsible pathogens originate from a variety of different sources and are represented by different types of HAI. The Centers for Disease Control and Prevention broadly categorizes the types of HAI as follows:

Central line-associated bloodstream infections (CLABSI) Catheter-associated urinary tract infections (CAUTI) Surgical site infections (SSI),ventilator -associated pneumonia (VAP).

Other types of HAI include non-ventilator-associated hospital-acquired pneumonia (NV-HAP), gastrointestinal infections (including Clostridioides difficile), other primary bloodstream infections—not associated with central catheter use, and other urinary tract infections—not associated with catheter use. HAI may also be grouped by affected systems such as ear, eye, nose and throat infections, lower respiratory tract infections (including bronchitis, tracheobronchitis, bronchiolitis, tracheitis, lung abscess or empyema without evidence of pneumonia), skin and soft-tissue infections, cardiovascular infection, bone and joint infections, central nervous systems infection, and reproductive tract infections.

A point-prevalence survey conducted in the United States in 2015 showed that the most common HAI in acute hospital settings is pneumonia, followed by gastrointestinal infections, SSI, other infections of the systems, as mentioned earlier, bloodstream infections, and urinary tract infections. The prevalence of these types of infections has changed from point-prevalence surveys in 2011, which showed pneumonia (21.8%) and SSI (21.8%) as the most common, followed by gastrointestinal (17.1%), urinary tract (12.9%), bloodstream (9.9%) and other infections. Interestingly, this same study showed that NV-HAP is the most common type of HAI in the acute health care setting, which is consistent with studies conducted in Europe. ⁵

In India Overall Percentage of different types of HAI calculated, UTI- 1318 (1.66%) more among females and 51.7 %, highest rate in general ward. BSI -360 (0.45%) with 54% male patients, 79.7% medical related type of diagnosis, 66.9% cases from ICU. VAP 148 (0.19%), 62.1% male patients, 94.8% - medical related type of diagnosis. SSI – 30 (0.04%) 65.5% male patients , General Ward 86.2% , 65.5% male patients. Mortality analysis reveal maximum number of deaths was due to BSI contributing to 27.22 % as case fatality rate and 60.12 % proportional mortality rate. ⁶

II. Materials And Methods :-

A descriptive study design was considered for the present study , 90 healthcare workers were recruited by convenient sampling technique and inclusion criteria included Nursing staff , MBBS interns and Technicians available at the time of research a self structured questionnaire containing 20 knowledge questions and WHO Handwashing checklist was used for the assessment of knowledge and practice respectively . Consent was taken from each participant and data was kept confidential .

RESULT: The findings of the study revealed that maximum healthcare workers (95.56%) had good knowledge with (4.44%) had average knowledge with no one having poor knowledge.

Maximum healthcare workers(88.89%) had good practice (11.11%) having poor practice.

TABLE 1.1 :- Frequency and percentage distribution of socio-demographic variables of health care workers.

N= 90

Socio- demographic Variables		N	%	SD
AGE	20-25 years	42	46.6	1.25
	26-30 years	33	36.6	0.87
	31-35 years	15	16.8	1.13
RESIDENCE	Rural	2	2.22	0.00
	Urban	88	97.7	1.12
FAMILY	Nuclear	43	47.7	1.19
	Joint	47	52.2	0.95
RELIGION	Hindu	40	44.4	1.07
	Muslim	12	13.3	0.90

	Sikh	29	32.2	1.22
	Christian	9	10	1.13
	Others	0		
Educational Status Of Parents	No Formal Education	0		
	Primary	1	1.1	
	Secondary	16	17.7	1.18
	Graduate and Above	33	36.6	0.83
	Medical Professionals	40	44.4	1.26
MONTHLY INCOME	Below 1 lakh/annum	0		
	Above 1 lakh/annum	90	100	1.12
COURSE AND OCCUPATION OF THE RESPONDENT	Nursing staff	30	33.33	1.14
	MBBS inters	30	33.33	1.32
	Technicians	30	33.33	0.38

* significant $p \leq 0.05$

TABLE 1.1:- Table shows that maximum Healthcare workers (46.6%) belong to the age group of 20-25 years , followed by (36.6%) between the age group of 26-30 years , followed by (16.8%) between the age group 31-35 years.

Maximum Healthcare workers (97.7%) resided in urban area whereas only (2.22%) belonged to rural area .

Majority of the Healthcare workers (52.2%) belonged to the joint type of family whereas (47.7%) belonged to nuclear family .

Maximum no. of Healthcare workers (44.4%) belonged to the religion Hindu , followed by (32.2%) healthcare workers belonging to Sikh religion followed by (13.3%) belonging to Muslim religion followed by the minimum no. of Healthcare workers (10%) belonging to Christian religion .

Majority of the Healthcare workers's parents (44.4%) were medical professionals followed by (36.6%) were graduate and above followed by (17.7%) with secondary education , followed by the minimum no. of parents (1.11%) having a primary education . Not even a single Healthcare worker had a parent with no formal education .

Maximum no. of Healthcare workers (100%) had a monthly income of 1 lakh/ annum with no Healthcare worker having an annual income below 1 lakh/ annum .

Healthcare workers involved 3 categories out of which each category had the same no. Of healthcare workers with Nursing staff , MBBS interns , Technicians by 30 , 30 , 30 respectively.

TABLE :- 2.1 Knowledge score of Healthcare workers .

N=90

Healthcare workers	Knowledge	Percentage (%)	N
Nursing staff	Poor		
	Average	10	3
	Good	90	27
MBBS interns	Poor		
	Average		0
	Good	100	30
Technicians	Poor		
	Average	3.33	1
	Good	96.67	29

* significant $p \leq 0.05$

TABLE 2.1 :- Revealed that (90%) nursing staff had good knowledge , (10%) had average knowledge and no nursing staff has poor knowledge. (100%) MBBS interns had good knowledge with no MBBS intern having average and poor knowledge . About (96.67%) Technicians had good knowledge with (3.33%) average knowledge and no one with poor knowledge.

TABLE :- 2.2 Practice score of Healthcare workers .

N=90

Healthcare workers	Practice score	Percentage (%)	N
Nursingstaff	Poor Practice	10	3
	Good Practice	90	27
MBBS interns	Poor Practice	23.33	7
	Good Practice	76.67	23
Technicians	Poor Practice		0
	Good Practice	100	30

* significant $p \leq 0.05$

TABLE 2.2 :- Revealed that about (90%) Nursing staff had good practice and (10%) of them had poor practice. (76.67%) MBBS interns had good practice and (23.33%) of them had poor practice . All (100%) Technicians had good practice with no one having poor practice.

TABLE :- 3.1 Table showing association of Knowledge score with demographic variables.

N=90

Socio-demographic variables		Good knowledge	Average knowledge	Poor knowledge	Chi-test (X ²)	Df	Result
AGE	20-25 years	42	0		10.655	2	Significant
	26-30 years	32	1				
	31-35 years	12	3				
RESIDENCE	Rural	2	0		0.095	1	Not significant
	Urban	84	4				
FAMILY	Nuclear	41	2		0.008	1	Not significant
	Joint	45	2				
RELIGION	Hindu	38	2		1.416	3	Not significant
	Muslim	12	0				
	Sikhs	27	2				
	Christians	9	0				
EDUCATIONAL STATUS OF PARENTS	No formal education	0	0		0.354	3	Not significant
	Primary	1	0				
	Secondary	15	1				
	Graduate and above	32	1				
	Medical professional	38	2				
MONTHLY INCOME	Below 1 lakh/annum	0	0		NA		
	Above 1 lakh/annum	86	4				
COURSE AND OCCUPATION OF THE RESPONDENT	Nursing staff	27	3		3.663	2	Not significant
	MBBS interns	30	0				
	Technicians	29	1				

* significant $p \leq 0.05$

TABLE 3.1 :- Table shows the association between the level of score and socio demographic variables. Based on the objective , chi-square test was used to associate the level of knowledge and selected demographic variables. The chi square value shows that there is significant association between the score level and demographic variable (age) .

The calculated chi-square value were more than the table value at the 0.05 level of significance. There is no significance association between the level of scores and other demographic variables (residence , family , religion, education status of the parents , monthly income , course and occupation of the respondent) . The calculated chi-square value was less than the table value at the 0.05 level of significance.

TABLE :- 3.2 Table showing association of Practice score with demographic variables.

N=90						
DEMOGRAPHIC VARIABLES		GOOD PRACTICE	POOR PRACTICE	CHI TEST	DF	RESULT
AGE	20-25 YEARS	34	8	6.879	2	Significant
	26-30 YEARS	33	0			
	31-35 YEARS	13	2			
RESIDENCE	Rural	2	0	0.256	1	Not significant
	Urban	78	10			
FAMILY	Nuclear	36	7			
	Joint	44	3			
RELIGION	Hindu	37	3	1.725	3	Not significant
	Muslim	11	1			
	Sikh	24	5			
	Christian	8	1			
	Others	0	0			
EDUCATION STATUS OF THE PARENTS	No formal education	0	0	7.481	3	Not significant
	Primary	1	0			
	Secondary	14	2			
	Graduate and above	33	0			
	Medical professionals	32	8			
MONTHLY INCOME	Below 1 lakh/annum	0	0	NA		NA
	Above 1 lakh / annum	80	10			
COURSE OF THE RESPONDENT	Nursing staff	27	3	8.325	2	Significant
	MBBS interns	23	7			
	Technicians	30	0			

*significant $p \leq 0.05$

TABLE 3.2 :- Table shows the association between the level of score and socio demographic variables .Based on the objective , chi-square test was used to associate the level of knowledge and selected demographic variable (age) . The calculated chi-square value is more than the table value at the 0.05 level of significance. There is no significant association between the level of score and other demographic variable (residence , family , religion , education status of the parents ,monthly income , course and occupation of the respondent). The calculated chi- square value was less than the table value at the 0.05 level of Significance.

III. Discussion :-

The present study findings have been discussed in accordance with the objectives of the study. The present findings of the study revealed that maximum healthcare workers (95.56%) had good knowledge with (4.44%) had average knowledge with no one having poor knowledge. Maximum healthcare workers(88.89%) had good practice (11.11%) having poor practice. A similar study was conducted by priyanka joshi , Dipti Sorte (2015) to evaluate the Nurses knowledge related to prevention of nosocomial infection . It showed that (76.66%) has good knowledge (23.33%) had average knowledge and no one had poor knowledge .

In the present study , the association of knowledge and practice score regarding nosocomial infections among healthcare workers with selected socio-demographic variables was calculated by using Chi-square value. There was association between the knowledge and practice score and demographic variable (age) but, there is no association between the level of knowledge and other demographic variables (residence , family , religion , education status of the parents , monthly income , course and occupation of the respondent). Among all only one variable which is ; Age is statistically significant as its chi-square value is <0.05 .

Another study by Ajamal Iqbal (2021) was conducted to assess the knowledge of workers regarding nosocomial infections . Study findings revealed that (35%) of nurses had excellent knowledge , (59%) average knowledge (6.25%) poor knowledge.

IV. Conclusion:

The following conclusions were drawn from the study. In the present study 90 subjects participated.

The findings of the study reveal that the knowledge of health Care workers regarding infections was 95.6% good ,4.4% average and 0.0% poor for 90 samples.

The analysis of the research shows that majority of demographic variables like Age, residence, type of family, religion, educational status of parents and monthly income of family had no statistical significance at the level of $p<0.05$.

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