A Study to Assess the Effectiveness of Self Instructional Module on the Knowledge of Prevention of Nosocomial Infection among 2nd Year RGNM Students of Krishna Institute of Nursing Sciences at Karad

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Abstract:
Background: Nowadays, the incidence of Nosocomial infection is increasing not only in India but also in other developed countries. Candida exist as normal flora on much of the human body, life-threatening invasive infections by these organism have increased in recent decades and causes of nosocomial blood stream infections worldwide. Ventilator associated pneumonia in childrens nosocomial sepsis is a serious problem for neonate.
Method: The study group comprised of (50) 2nd year RGNM students of Krishna Institute of Nsg Sciences. An evaluator approach is used to assess the effectiveness of self instructional module among student nurses, Quasi experimental one group pre-test and post test design was used. Students were selected by using purposive random sampling technique.
Results: The mean knowledge score in relation to total knowledge score shows that in pretest 15.1 and in post test 21.62 by using students paired 't' test significant difference is found in mean knowledge score in pre and post test i.e. t=6.52 and p=0.043 which is less than 0.05.
Conclusion: The overall knowledge mean in the pretest are 15.1 with standard deviation of 2.978 and in the post test 21.62 with standard deviation of 2.311.

Keywords: Noso-comial infection, effectiveness, self-instructional module, assess, knowledge, prevention

1. Introduction

"Constant attention by a good nurse may be just as important as a major operation by a surgeon" Hospital is a place from there we will get treatment for all the disease, but there are some disease which will arise from hospital, and leads to complication those are known as Nosocomial Infection.

Nosocomial Infections are acquired after hospital admission by patients showing no prior signs of infection. Such infections affect patients in hospitals, long-term acute care facilities, nursing homes, rehabilitation centers, dialysis clinics and other healthcare settings. Healthcare-Associated Infections (HAI) are defined as infections not present and without evidence of incubation at the time of admission to a healthcare setting. As a better reflection of the diverse healthcare settings currently available to patients, the term healthcare associated infections replaced old ones such as Nosocomial, hospital-acquired or hospital-onset infections within 48 hours after admission. Patient's flora begins to acquire characteristics of the surrounding bacterial pool. Most infections that become clinically evident after 48 hours of hospitalization are considered hospital-acquired. Infections that occur after the patient is discharged from the hospital can be considered healthcare-associated if the organisms were acquired during the hospital stay.

Nosocomial infections in children vary depending on the child's age, hospital unit and instrumentation devices in use. The most common include viral upper and lower respiratory tract infections, gastroenteritis, bloodstream infections and ventilator-associated pneumonia. Effective preventive measures are under study; however, hand hygiene remains the single most effective measure. In addition, adherence to isolation guidelines, catheter care guidelines, and varicella and influenza vaccination recommendations, along with screening visitors and health care workers for illness, are key measures in the prevention of pediatric Nosocomial infections.

There are many differences between children and adults with respect to Nosocomial infections. Factors unique to pediatric patients include differences in the process of care, such as the type and amount of physical contact between patients and health care workers (e.g.Feeding and Diapering); differences in developmental immunity, congenital anomalies that disrupt anatomic barriers; different sources of infection, such as the maternal genitourinary tract, increased susceptibility to certain pathogens (e.g.Vricella-Zoster Virus) and social interactions that may increase the transmission of microbes, such as sibling visitation, playroom exposures, and pets used for therapeutic purposes.

Hospital-acquired infections can be caused by bacteria, viruses, fungi or parasites. These micro-organisms may already be present in the patient's body or may come from the environment, contaminated hospital equipment, healthcare workers, or other patients. Depending on the causal agents involved, an infection may start in any part of the body. A localized infection is limited to a specific part of the body and has local symptoms. For example, if a surgical wound in the abdomen becomes infected, the area of the wound becomes red, hot and painful. A generalized infection is one that enters the bloodstream and causes general systemic symptoms such as fever, chills, low blood pressure, or mental confusion. Hospital-acquired infections may develop from surgical procedures, catheters placed in the urinary tract or blood vessels, or from material from the nose or mouth that is inhaled into lungs. The most common types of hospital-acquired infections are urinary tract infections (UTs), pneumonia and surgical wound infections.

2. Materials and Methods

Permission was obtained from principal of college. The investigator introduces them and explained the purpose of study. Informed consent was obtained from each participant. Data collection was done to assess the effectiveness of self instructional module on the knowledge of prevention of nosocomial infection among 2nd year RGNM student of Krishna institute of nursing science Karad. In this study 50 student were selected by purposive random sampling. The insvestigator collected data for analyzing and interpretation using structured knowledge questionnaire In order to examine the proposed association the data was tabulated, analyzed and interpreted in terms of objectives of study using discruptive and inferential statistics by paired test and computation of p value to test the effectiveness of self instructional module, chi- square test was used.

2.1. Results

Sr No.	Characteristics	Frequency. N=50	Percentage. %
1.	**Age in year**.		
	17-21	35	70
	21-23	10	20
	>23	05	10
2.	**Gender.**		
	Male.	03	06
	Female.	47	94
3.	**Religion.**		
	Hindu.	46	92
	Christian.	02	04
	Muslim.	02	04
	Others.	00	00
4.	**Higher secondary education faculty**		
	Arts.	21	48
	Commerce.	11	22
	Science.	18	36
5.	**Marital status.**		
	Married.	07	14
	Unmarried.	43	86
6.	**Previous knowledge regarding nosocomial infection.**		
	Yes.	25	50
	No.	25	50
7.	**Medium of study.**		
	English medium.	06	12
	Marathi.	44	88

Table 1: Demographic description of 2nd year RGNM nursing students by frequency and percentage.

The above table shows that maximum number of nursing students 35 (70%) belongs to age group of 17-21 years. Majority of 2nd year RGNM nursing students 47(94%) were females and only 3(6%) was males. In relation to religion 46(92%) were Hindu, 2(4%) were Christian and 2(4%) were Muslims. According to the faculty of higher secondary education students of arts side were 21(42%), commerce side was 11(22%) and sciences were 18(36%). Out of 50 students, married were 7(14%) and unmarried were 43(86%). Regarding previous knowledge of prevention of nosocomial infection is 25(50%) students are having knowledge and 25(50%) were not having knowledge. 6(12%) students of English medium and 44(88%) students are of Marathi medium.

Sr. no.	Knowledge Score	Pretest n=50		Posttest n=50	
		Frequency	Percent	Frequency	Percent
1.	Good	04	08	38	76
2.	Average	44	88	12	24
3.	poor	02	04	00	00

Table 2: Distribution of frequency and percentage total knowledge score of subjects regarding knowledge of prevention of nosocomial infection.

Sr. no.	Area of Analysis	Pre administration of SIM n=50		Post administration of SIM n=50	
		Mean	SD	Mean	SD
1.	Knowledge regarding nosocomial infection.	9.44	2.340	14.34	1.965
2.	Knowledge regarding prevention of nosocomial infection	5.66	1.272	7.28	1.089

Table 3: Area wise distribution of mean and SD.

In above mentioned table represents total knowledge score of subjects regarding knowledge of prevention of nosocomial infection in pretest 2(4%) of the subjects had poor knowledge, 44(88%) nursing students had average knowledge and no 4(8%) sample had good knowledge. In posttest no samples had poor knowledge, 12(24%) of the subjects had average and knowledge, 38(76%) nursing subjects had good knowledge.

The knowledge score of the samples should a marked increased as seen in the post administration of self instructional module score of nursing students, which indicates that the administration of self instructional module is effective in increasing the knowledge score of nursing students.

The above mentioned table reveals that means of general information and knowledge regarding prevention of nosocomial infection is 9.44 and 5.66 before administration of self instructional module. After administration of self instructional module mean is increased i.e... 14.34 and 7.28.

Sr no.	Knowledge score.	Paired differences.			t-value	Df	p-value.
		Mean.	Std. deviation	Std. Error mean			
1.	Total pretest and post-test knowledge.	6.520	3.025	0.4278	15.23	49	0.0043

Table 4: Overall paired t-test score regarding knowledge of prevention of nosocomial infection.

From the above mentioned table – It is evident that the obtained pre and post test score t – value is 15.23 and p – value is less than 0.05 so Null hypothesis is rejected and hence alternative hypothesis is accepted. Thus it is concluded that the self instructional module was effective

Sr no.	Characteristics.	Knowledge score.			Chi-square value.		
		Poor	Average	Good	Value	Df	p-value
1.	**Age in year.**						
	17-21	02	32	01	8.961	4	0.0621
	21-23	0	09	01			
	>23	0	03	02			
2.	**Gender.**						
	Male.	0	3	0	0.4352	2	0.8044
	Female.	2	41	04			
3.	**Religion.**						
	Hindu.	01	44	01	42.391	4	0.0001
	Christian.	0	0	02			
	Muslim.	01	0	01			
	Others.	0	0	0			

4.	Higher secondary education faculty.					
	Arts.	1	20	0			
	Commerce.	1	10	0	8.924	04	0.0001
	Science.	0	14	4			
5.	Marital status.					
	Married.	0	7	0			
	Unmarried.	2	37	4	1.110	2	0.5741
6.	Previous knowledge regarding nosocomial infection.					
	Yes.	0	21	4			
	No.	2	23	0	1.110	2	0.5741
7.	Medium of study.					
	English medium.	0	6	0			
	Marathi.	2	38	4			
	Others.	0	0	0	0.9298	2	0.6282

Table 5: Association between pre tests score and selected demographic variables.

3. Discussion

The first objective was to assess the knowledge of student's nurses regarding prevention of nosocomial infection. The level of knowledge score of 2nd year RGNM nursing student regarding knowledge of prevention of nosocomial infection. In pretest 2(4%) of the subjects had poor knowledge. 44(88%) nursing students had average knowledge and 4(8%) sample had good knowledge. The mean knowledge score obtained for overall knowledge was 15.1 with standard deviation of 2.978. The study finding are supported by a descriptive study was carried out in 1998 "To assess the knowledge and practices of nursing personal regarding prevention of nosocomial infection in immediate operative care of cardiac surgery client on ventilator in cardio thoracic intensive care unit in selected hospitals of Hyderabad". 30 nurses working in CTICU with at least 6 months experience were selected by purposive sampling. Data was collected by observational check list and questionnaire. The study revealedthat majority of nurses had poor knowledge and practices and more than one third of nurses had average knowledge and practices.

The second objective was to assess the effectiveness of self instructional module on knowledge of students on prevention of nosocomial infection. The comparison of pre and post test knowledge on care of patient on prevention of nosocomial infection among 2nd year RGNM nursing students revels that the overall knowledge improvement mean was 21.62 with standard deviation 2.978. The paired t-test value was 15.23 which is highly significant at $p<0.043$ level of significance. Hence the Ho is rejected and H1 is accepted. Thus it is conclude that the self instruction module was effective. This indicates that the self instructive module was effective as there was a significant gain in mean knowledge score. The study findings are supported by an evaluator study was conducted to evaluate the effectiveness of SIM on nurse's knowledge regarding care of prevention of nosocomial infection in a selected hospital at Mumbai. In this study 50 nurses were selected using purposive sampling technique. The study findings showed that the mean post test knowledge score was significantly higher than mean pre test knowledge score. And calculated t' value was 20.76.

The third objective was to find an association between pre test knowledge and selected demographic variations.The analysis was done for association between pre test level of knowledge and with selected demographic variables using chi-square test. As the computed chi-square value was greater than the table value at $p>0.05$, level of significant. Hence it states that there is no association between age, sex, religion, faculty of higher secondary education, English and Marathi medium and previous knowledge of nosocomial infection. The study findings supported by a study conducted on knowledge and practice of prevention of nosocomial infection among staff nurses working in pediatric intensive care unit and neonatal intensive care unit (n=40) in selected hospital, Chennai. The result showed that 72.5% of staff nursed had adequate knowledge, 25% had moderate knowledge and only 2.55 had inadequate knowledge regarding nursing care of patient on mechanical ventilation. The result showed that 52.5% of staff nurses had moderate practice level and 47.5% had adequate practice level and the computed chi-square was greater than table at $p>0.05$, level of significant. Hence there is no association between demographic variables. Regarding prevention of nosocomial infection. Analysis of data showed that there was significant difference between pre test and post test knowledge score.

Hence a proper treatment and care is needed for the nosocomial infection in children. The nurses should have adequate knowledge in taking care of the patient and personal hygiene. At the same time the student nurse should get a clear idea on the clinical manifestation, medical and nursing management, the side effects and the prevention of nosocomial infection. When the student nurses will go to the hospital for practicing, the knowledge on the prevention of nosocomial infection will help them to take care of clients in the good manner.

4. Conclusion

The self instructional module significantly brought out improvement in the knowledge of 2nd Year RGNM nursing students regarding prevention of Nosocomial Infection. Hence a proper treatment and care is needed for the Nosocomial Infection. The nurses should have an adequate knowledge in taking care of the patients and personal hygiene. At the same time student nurses should get a clear idea on the clinical manifestations, medical and nursing management, the side effects and the preventions of nosocomial infection. When the student nurses will go to the hospital for practicing the knowledge on the prevention of Nosocomial Infections will help them to r=take care of the clients in a good manner

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