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A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding MRSA among Staff Nurses at SGRD Hospital Vallah, Amritsar

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ABSTRACT

Antibiotic resistant bacteria have become the source of medicine and nursing particularly in the hospital setting. One of the most troublesome bacterial strains is MRSA.MRSA infection can lead to death predominantly in hospitalised debilitated patients. Methicillin resistance staphylococcus aureus rose to prominence when centre for disease control and prevention report published in journal of American Medical Association estimated that nearly 19000 people had died of MRSA infection in 2005. A pre experimental study was conducted to assess effectiveness of structured teaching programme on knowledge regarding MRSA among staff nurses at SGRD Hospital Vallah, Amritsar. 50 staff nurses were selected by using purposive sampling technique**.** Questionnaire method was used to assess the knowledge. The tool containing demographic profile and self structured knowledge questionnaire was given and post-test data was collected. Results reveals that pre-test mean with SD was 13.60±4.768 and post-test mean and SD was 22.18±6.439 using paired t-test (t=7.856 at p=0.05). The result indicates that structured teaching programme on MRSA was effective and shows significant improvement in post-test knowledge among staff nurses on MRSA.

Keywords:- Methicillin resistance staphylococcus aureus, Pre-experimental study

INTRODUCTION

Methicillin-resistant Staphylococcus aureus (MRSA) strains or multidrug-resistant S. aureus, initially described in 1960s, emerged in the last decade as a cause of nosocomial infections responsible for rapidly progressive, potential fatal diseases including life-threatening pneumonia, necrotizing fasciitis, endocarditis, osteomyelitis, severe sepsis, and toxinoses such as toxic shock syndrome[1]. At present, healthcare-associated methicillin-resistant S. aureus (HA-MRSA) is associated with significant mortality and morbidity and imposes a serious economic burden on scarce healthcare resources worldwide[1]. The incidence of MRSA varies from 25 per cent in western part of India[2]. Community acquired MRSA has been increasingly reported from India[3]. Methicillin resistant staphylococcus aureus is by no means a new bacteria it is the only nee to the public consciousness. Due to the mathematics of infectious disease, MRSA has exploded along an exponential curve and now represents the majority of all staphylococcus infection seen in ICU and in the long term care facilities.

Dulon et al conducted a meta-analysis of 31 studies that had assessed the prevalence of MRSA colonization among Health care workers and found out that the pooled MRSA colonization rate was 1.8% and the rate was higher in nursing staff (6.9%).[4]

MRSA is found worldwide predominantly in the hospitals and institutions such as nursing homes. The commonly associated risk factors for MRSA infection are prolonged hospitalization, intensive care admission, recent hospitalization, recent antibiotic use, MRSA colonization, invasive procedures, HIV infection, admission to nursing homes, open wounds, hemodialysis, and discharge with long-term central venous access or long-term indwelling urinary catheter. A higher incidence of MRSA infection is also seen among healthcare workers who come in direct contact with patients infected with this organism.[5] By far the most important resource is patient who may be colonized with MRSA without evidence of infection. The usual sites of colonization with MRSA are the nostrils, skin, groin, axilla and wounds.[6]

It becomes readily apparent that most of the country is unaware of the degree of threat posed by MRSA. Staphylococcus aureus is a bacterium that was discovered in 1880 in surgical abscess. Staphylococcus has a talent for antibiotic resistant to penicillin nearly immediately after penicillin was introduced in the 1940. Methicillin is an antibiotic that was used to treat this penicillin resistant staphylococcus, but as the bug continued to collect resistances to Methicillin resistant staphylococcus aureus was born.

A study done by Indian Network for Surveillance of Antimicrobial Resistance group overall prevalence of methicillin resistance during the study period was 41 per cent. Isolation rates for MRSA from outpatients, ward inpatients and ICU were 28, 42 and 43 per cent, respectively in 2008 and 27, 49 and 47 per cent, respectively in 2009.[3]

Methicillin Resistant Staphylococcus aureus is the leading cause of skin and soft tissue infection in patients reporting to emergency department for treatment with a rising rate in primary care clinics and intensive care unit. Invasive MRSA related condition most commonly reported include septic shock (56%), pneumonia (32%), endocarditis (19%), bacteraemia (10%), and cellulitis (6%).[7]

Today this nursing curriculum does not include the MRSA, so naturally staff have exposure to that field make them vulnerable to MRSA. Educating these staff nurses and creating awareness in helping them to learn more about MRSA will help to protect themselves and to prevent nosocomial spread of MRSA.

Studies indicate that the incidence of MRSA in the past few years has extensively increased worldwide. According to report from Malwa region (Punjab) north west India, during 2012- 13 a total of 248 staphylococcus aureus isolates obtained from various clinical specimen like Pus, blood, urine and body fluids ,catheter tips etc. Study report that 161(64.9%) were detected as MRSA and 87(37%) as methicillin sensitive staphylococcus aureus by observing their resistance to cefoxitin. Furthermore, the MRSA increased from 60.5 per cent in 2012 to 71.8 per cent in 2013, but the difference was not significant. The isolation rate of MRSA from non- ICU patients 69.6% in were higher than that of outpatient 18.8% in 2013.[8]

This research purposes to investigate the staff nurses knowledge on MRSA in an effort to outline interventions necessary for improvement of staff nurses education regarding MRSA. Investigating attitude and proceed barriers toward caring for patient with MRSA will assist in strategies for attaining higher standard clinical practices on patient care and improve staff compliance to MRSA infection control guidelines.

Objectives of the study

- To assess the level of knowledge regarding MRSA among staff nurses
- To assess the effectiveness of structured teaching programme on knowledge regarding MRSA among staff nurses.
- To associate the findings of pre-test and post-test level of knowledge with selected socio-demographic variables.

Hypothesis

H_1: The post test knowledge on MRSA among staff nurses will be significantly higher than pre test knowledge after structured teaching programme on MRSA.

H_0:- The post test knowledge on MRSA among staff nurses will not be significantly higher than pre test knowledge after structured teaching programme on MRSA

MATERIALS AND METHODS

A pre experimental study was conducted to assess the effectiveness of structured teaching programme on knowledge regarding MRSA among staff nurses at SGRD hospital, Vallah, Amritsar. 50 staff nurses were selected by using purposive sampling technique. Prior to data collection informed consent was obtained. The period of data collection was planned from 6th to 9th June 2018. The tool containing demographic profile and self structured knowledge questionnaire on MRSA was given after that Structured teaching programme on MRSA was given to the staff nurses and post-test data was collected. The data collected was analyzed as per plan of analysis. Ethical permission was obtained from ethical and research committee of Sri Guru Ram Das Institute of Medical Sciences and Research (SGRDIMSR), Amritsar, Punjab. After gaining the approval, permission was taken from the Director Principal to conduct research study. Confidentiality and anonymity were maintained during and after data collection. Data analysis was done with the use of statistical software SPSS 17.0.

RESULTS

Table 1: Frequency and Percentage Distribution of Demographic Variables N=50

S.NO	Demographic Variable	Frequency	Percentage
1	Age in years		
	20-25 yrs	16	32
	26-30 yrs	24	48
	31-35 yrs	8	16
	> 35 yrs	2	4
2	Professional Qualification		
	ANM	3	6
	GNM	25	50
	B. Sc Nursing	20	40
	Post Basic B. Sc (N)	2	4
3	Professional Experience		
	0-1 year	4	8
	2-4 year	27	54
	5-6 year	11	22
	Above 6 year	8	16
4	Current clinical posting area		
	Medical ward	15	30
	ICU	16	32
	Surgical ward	16	32
	Ortho ward	3	6
5	Any clinical experience with MRSA patient		
	Yes	13	26
	No	37	74
6	Any in-service education on MRSA		
	Yes	13	26
	No	37	74

Table 1 shows the frequency and percentage distribution of demographic variables. The results reveals that majority of respondents were in age group of 26-30 yrs (48%). Most of staff nurses 50% had completed GNM with Professional experience of 2-4 yrs. Majority of data was collected from ICU and surgical ward i.e. 32%. Data also shows that 74% of staff nurses had no clinical experience with MRSA patient and had not attended any in-service education on MRSA.

Table 2: Effectiveness of Structures teaching programme on knowledge regarding MRSA among Staff Nurses N=50

Level of knowledge	Mean	SD	t value	df	p value
Pre-test	13.60	4.768	7.856	49	.000 *
Post-test	22.18	6.439			

Table 2 shows the comparison between pre-test and post-test level of knowledge regarding MRSA among staff nurses which reveals that pre-test mean and SD was 13.60±4.768 and post-test mean and SD was 22.18±6.439. The pre-test and post-test mean was compared using paired t-test, result shows that t value is 7.856 at p=0.000 which indicates that structured teaching programme on MRSA was effective and shows significant improvement in post-test knowledge among staff nurses on MRSA.

Table 3: Association between pre-test knowledge score and demographic variables among staff nurses N=50

Demographic Variable	Inadequate Knowledge	Moderate knowledge	Adequate Knowledge	χ^2 value df P value
Age in years				
a . 20-25 yrs	5	8	3	3.571
b. 26-30 yrs	6	15	3	6
c. 31-35 yrs	2	6	0	0.735 NS
d. > 35 yrs	0	2	0	
Professional Qualification				
a. ANM	1	2	0	10.14
b. GNM	8	17	0	6
c. B. Sc Nursing	4	11	5	0.119 NS
d. Post Basic B. Sc (N)	0	1	1	
Professional Experience				
a. 0-1 year	1	1	2	10.48
b. 2-4 year	6	18	3	6
c. 5-6year	5	5	1	0.106 NS
d. Above 6 year	1	7	0	
Current clinical posting area				
Medical ward	5	8	2	3.405
ICU	2	11	3	6
Surgical ward	5	10	1	0.757 NS
Ortho ward	1	2	0	
Any clinical experience with MRSA patient				6.107
Yes	2	7	4	2
No	11	24	2	0.047 *
Any in-service education on MRSA				7.423
Yes	1	8	4	2
No	12	23	2	0.024 *

*p value <0.05 level of significance NS-Non-Significant

Table 4: Association between post-test knowledge score and demographic variables among staff nurses N=50

Demographic Variable	Inadequate knowledge	Moderate knowledge	Adequate knowledge	χ^2 value df P value
Age in years				
a . 20-25 yrs	1	4	11	2.749
b. 26-30 yrs	4	3	17	6
c. 31-35 yrs	1	1	6	.840 NS
d. > 35 yrs	0	0	2	
Professional Qualification				
a. ANM	0	0	3	4.000
b. GNM	2	4	19	6
c. B. Sc Nursing	4	4	12	.677 NS
d. Post Basic B. Sc (N)	0	0	2	
Professional Experience				
a. 0-1 year	0	2	2	5.818
b. 2-4 year	4	4	19	6
c. 5-6year	2	1	8	.444 NS
d. Above 6 year	0	1	7	
Current clinical posting area				
Medical ward	2	2	11	
ICU	2	4	10	2.429
Surgical ward	2	2	12	6
Ortho ward	0	0	3	.877 NS
Any clinical experience with MRSA patient				4.522
Yes	0	4	9	2
No	6	4	27	.104 NS
Any in-service education on MRSA				4.522
Yes	0	4	9	2
No	6	4	27	.104 NS

*p value <0.05 level of significance NS-Non-Significant

Table 3 shows the association between pre-test knowledge score and demographic variables which were statistically tested using chi-square test. The result shows that clinical experience with MRSA patient and in-service education on MRSA among staff nurses was found significant association with pre-test knowledge score at less than 0.05 level of significance. The other demographic variables such as age, professional qualification and experience and clinical posting area of nurses have no significant association with pre-test knowledge score on MRSA.

Table 4 shows that demographic variables such as age, professional qualification and experience, clinical posting area of nurses, clinical experience with MRSA patient and in-service education on MRSA has no significant association with post-test knowledge score on MRSA.

DISCUSSION

The present study was conducted to assess the knowledge regarding MRSA among staff nurses. The results of pre-test level of knowledge regarding MRSA reveals that 31(62%) had moderate knowledge, 13(26%) had inadequate knowledge and 6(12%) of nurses had adequate knowledge with an average mean and SD of 13.60±4.768.The results of post-test level of knowledge regarding MRSA shows that 8(16%) had moderate knowledge, 6(12%) had inadequate knowledge and 36(72%) of nurses had adequate knowledge regarding MRSA with an average mean and SD of 22.18±6.439. A similar study was conducted by P.M. Easton etal to assess the knowledge and perceived practice of staff regarding MRSA and its management in an acute hospital setting. Results showed that Knowledge on many aspects of MRSA and its management was deficient, although the majority of participants who felt that they required additional information about MRSA.[9]

Comparison between pre-test and post-test level of knowledge regarding MRSA among staff nurses reveals that pre-test mean and SD was 13.60±4.768 and post-test mean and SD was 22.18±6.439. The pre-test and post-test mean was compared using paired t-test which shows that (t=7.856 and p=0.000). The similar study was conducted by Ellen A. Suss. to determine nurses knowledge, attitude and compliance related to MRSA. Study revealed that nurses had adequate knowledge of MRSA, aside from overt lack of knowledge regarding antibiotic treatment.[10]

This study reveals that clinical experience with MRSA patient and in-service education on MRSA among staff nurses was found significant association with pre-test knowledge score less than 0.05 level of significance. The other demographic variables such as age, professional qualification and experience and clinical posting area of nurses have no significant association with pre-test knowledge score on MRSA.

CONCLUSION

The present study was conducted to assess the knowledge regarding MRSA among staff nurses. The results of pre-test level of knowledge regarding MRSA reveals that 31(62%) had moderate knowledge, 13(26%) had inadequate knowledge and 6(12%) of nurses had adequate knowledge with an average mean and SD of 13.60±4.768. The results of post-test level of knowledge regarding MRSA shows that 8(16%) had moderate knowledge, 6(12%) had inadequate knowledge and 36(72%) of nurses had adequate knowledge regarding MRSA with an average mean and SD of 22.18±6.439. Comparison between pre-test and post-test level of knowledge regarding MRSA among staff nurses reveals that pre-test mean and SD was 13.60±4.768 and post-test mean and SD was 22.18±6.439. The pre-test and post-

test mean was compared using paired t-test which shows that (t=7.856 and p=0.000).

On the basis of the study finding it was found that improvements in the post test knowledge score regarding MRSA among staff nurses was seen which reveals that STP on MRSA was effective

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