

A Study To Assess The Level Of Knowledge Regarding Methicillin Resistant Staphylococcus Aureus Among Staff Nurses In Selected Hospital, Thrissur With A View To Develop An Information Booklet

Prof. Dr. Nandini. M¹, Remya T.P²

Angel Jose³, Ashly Santhosh³, Essy Eldho³, Lincy Sunny³, Mintu Kuruvilla³,
Nivya.S.Thekkekara³, Sandra Jaison³, Sinju Shaju³

¹(Vice Principal cum HOD of child health nursing, Aswini College Of Nursing, Thrissur) ²Assistant professor department of medical surgical nursing/ Aswini college of nursing, Thrissur) ³IVth Year BSc Nursing Students, Aswini College Of Nursing, Thrissur)

Abstract:

Background: MRSA is a type of Staphylococcus infection that is resistant to many antibiotics. It is responsible for several infections in humans that are difficult to treat and it is common in hospitals, prisons and nursing homes where people with the open wounds, invasive devices suggest catheters and weakened immune system.

Aim of the study: The study aims to assess the level of knowledge regarding MRSA among staff nurses, with a view to develop an information booklet. **Method:** 40 staff nurses in selected hospitals, Thrissur is included in the study. **Results:** Among staff nurses 47.5 % have moderate level of knowledge, 50 % of them have inadequate knowledge, 2.5 % have poor knowledge and none of them have adequate knowledge. **Conclusion:** The study findings revealed that there is no significant association between knowledge regarding MRSA among staff nurses, with the selected demographic variables.

Keywords: Methicillin Resistant Staphylococcus Aureus, information booklet, staff nurses.

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I. INTRODUCTION

Methicillin resistance staphylococcus aureus is the most troublesome bacterial strains which is the antibiotic resistant bacterium. It becomes the source of the medicine and nursing particularly in the hospital settings. Healthcare associated methicillin resistant staphylococcus aureus (HA-MRSA) is associated with significant mortality and morbidity and imposes a serious economic burden on scarce healthcare resources presently in world wide¹.

MRSA is found worldwide in the hospital, among prisons and institutions such as nursing homes. The commonly associated risk factors are prolonged hospitalization, intensive care admission, recent hospitalization, recent antibiotic use, MRSA colonization, invasive procedures, HIV infection, admission to nursing homes, open wounds, haemodialysis and discharge with long term indwelling urinary catheter. Healthcare workers also become infected with MRSA, for those who come in direct contact with patients with this organism².

The colonization of MRSA increases the risk of infection. Any item in contact with skin can serve as fomites in MRSA transmission, from white coats and ties to pens and mobile, telephones for longer period of time the colonization of MRSA can persist³. Staphylococci are ordinary microorganism found mostly on the skin and nose of 20 to 30% of healthy adults. They are generally harmless, however are harmful if they enter in to the blood system. MRSA is a type of staphylococcus bacteria that is resistant to antibiotic. MRSA infection can cause life threatening problem if left untreated.

In Indian subcontinent, methicillin resistant staphylococcus aureus is an emerging infection with incidence rates of 25 % to 50 % reported in different parts of country. Antimicrobial resistance patterns differ geographically. The Asia-Pacific regions accounts for one third of the world's population reporting a steady increasing the incidents of MRSA in healthcare settings since the 1980s⁴.

In India, a study was conducted to assess the prevalence, burden and epidemiology of MRSA in 2020. The aim of the study is to highlight the challenges in diagnosis and management of MRSA in India. A total of

34 studies involving 16237 patients were included in the study and the study found that MRSA in India is relatively high at 27% with a higher proportion observed among men aged in above 18 years.⁵

The information regarding the MRSA is not included in the Nursing curriculum properly in a way in which the nurses doesn't get good knowledge about MRSA. So naturally staffs have exposure to that field make vulnerable to MRSA. Including MRSA related topics more in nursing curriculum, educating the staff nurses and creating awareness in helping them to learn more about MRSA will help to protect themselves and to prevent nosocomial spread. Health care workers should maintained high standard of hygiene, while taking care of patient with MRSA.

Hence the study aimed to access the knowledge of staff nurses regarding MRSA with a view to develop an information booklet. The knowledge regarding general aspects, incidence, diagnostic measures, prevention and management are assessed in the study. Investigating attitude and proceeding barriers towards caring for patient with MRSA will assist in strategies for attaining standard clinical practices on patient care and improve staff compliance to MRSA infection guidelines.

II. MATERIALS AND METHODS

Objectives:

- To assess the knowledge regarding MRSA among staff nurses.
- To find association between the levels of knowledge regarding methicillin resistant staphylococcus aureus among staff nurses with the selected socio- demographic variables.
- To prepare and distribute information booklet regarding prevention and control of MRSA among staff nurses.

Operation definition:

Assess: Measuring the level of knowledge of staff nurses on MRSA with the help of structured questionnaire.

Knowledge: Ability of staff nurses to recall and they give character response to the items regarding MRSA as measured by the structured questionnaire expressed knowledge score.

MRSA: In this study it refers to knowledge of MRSA infection among staff nurses. MRSA is a type of bacterium that has become resistant to many antibiotics including methicillin, penicillin and amoxicillin.

Staff nurses: A person trained to care for the sick or infirm especially in a hospital. In this study it refers to GNM, BSc, post basic nurses and MSc nurses in a selected hospital, Thrissur.

Research design: A descriptive survey design

Sample and sampling technique:

A non probability convenience sample of 40 staff nurses of selected hospital, Thrissur

- The inclusion criteria are the staff nurses working who are willing to participate in the study, available at the time of data collection.
- The exclusion criteria are who are not willing to participate in the study and those who are on leave on the day of data collection.

Tools:

Part 1: Staff nurses basic data questionnaire it included staff nurses socio demographic and professional data such as age, gender, religion, number of years of clinical experiences, educational qualification, area of work, previous information about a MRSA. It consists of 8 questions.

Part 2: Staff nurses knowledge regarding general aspect, incidence, diagnostic measures, prevention and management of MRSA. It consists of 30 questions. The total score of knowledge items range from 0- 30. The level of nurses knowledge was categorised as follows adequate knowledge which has from 25 - 30, moderate knowledge from 17 - 24, inadequate knowledge from 9 - 16 and poor knowledge which was from 0- 8.

Method

The study was conducted according to the following steps

- Approval from the ethical committee was obtained followed by administrative permission for conducting the study.
- The tool was developed by the researcher, after a review of recent relevant literature.
- After obtaining content validity from experts the study was conducted among staff nurses by following the inclusion and exclusion criteria.
- The collected data were analysed by descriptive statistics.

Ethical Considerations

A formal permission was obtained from the hospital authorities and ethical committee to avoid ethical issues. Moreover a written consent from the samples was also obtained before conducting the research study.

III. RESULTS

Table (1): presented

- According to age 7.5 % of them were below 25 year 62.5 % of them were between 25 to 30 years 20 % of them were between 31 to 40 years and 10% of them below 40 year.
- According to gender 2% are male and the other 98 % are female.
- According to religion 32.5 % were Hindus 67.5 % were Christians and there are no Muslims and others.
- According to clinical experience 10% were less than 1 year 50 % between 1 to 5 year 20 % were between 5 to 10 years and 20 % where less than 10 years.
- According to educational qualification 60 % were GNM 35 % were BSc nursing 5% were post BSc nursing and none of them are MSc nursing and above.
- According to the area of work 67.5 % were in general ward, 12.5 % were in casualty, 17.5 % were in ICU and 2.5 % were others.
- According to the period of time working in ward or ICU or casualty 22.5 % were less than 1 year, 55 % were in between 1 to 5 year, 12.5 % were between 5 to 10 year and 10% were greater than 10 year.
- According to the previous information about a MRSA 57.5% had previous information and 42.5 % had no previous information about MRSA.

Table (2): Shows frequency and percentage distribution of sample according to knowledge level

- 2.5 % of samples have poor knowledge, 47.5 % of samples have inadequate knowledge and 50 % of samples have moderate knowledge and none of them have adequate knowledge regarding MRSA.

Table (3): It shows the description on association between levels of knowledge of staff nurses regarding MRSA with their selected demographic variable

- It revealed that there is no significant association between knowledge regarding MRSA among staff nurses with their selected demographic variable. Age($\chi^2=1.5908,TV=3.84$), gender ($\chi^2=1.128,TV=3.84$) religion, ($\chi^2=2.159,TV=3.84$), clinical experience ($\chi^2=3.392,TV=3.84$), educational qualification ($\chi^2=0.0666,TV=3.84$), area of work ($\chi^2=2.161,TV=3.84$), Period of time working in ward/ICU/casualty /others($\chi^2=0.14,TV=3.84$), previous information about MRSA($\chi^2=1.722,TV=3.84$).

Table (1): Frequency and percentage distribution of samples of age, Gender, Religion, Clinical experience, Educational qualification, Area of work, The period of time working in ward/ICU/Causality, Previous information about MRSA.

N=40

Sl no.	Demographic variable	Characteristics	Frequency	Percentage (%)
1	Age	Below 25 year	3	7.5
		25-30 year	25	62.5
		31-40year	8	20
		>40 year	4	10
2	Gender	Male	1	2.5
		Female	39	97.5
3	Religion	Hindu	13	32.5
		Christian	27	67.5
		Muslim	0	0
		Others	0	0
4	Clinical Experience	<1 year	4	10
		1-5 year	20	50
		5-10 year	8	20
		>10 year	8	20
5	Educational qualification	GNM	24	60
		BSc Nursing	14	35
		Post BSc nursing	2	5
		MSc nursing and above	0	0
6	Area of work	General ward	27	67.5
		Causality	5	12.5
		ICU	7	17.5
		Others	1	2.5
7	The period of time working in ward/ICU/Causality	< 1 year	9	22.5
		1-5 year	22	55
		5-10 year	5	12.5
		>10 year	4	10
8	Previous information about MRSA	Yes	23	57.5
		No	17	42.5

Table (2): Frequency and percentage distribution of sample according to knowledge level

N=40

Sl no	Knowledge level	Frequency	Percentage (%)
1	Adequate	0	0
2	Moderate	19	47.5
3	Inadequate	20	50
4	Poor	1	2.5
	Total	40	100

Table (3): Description on association between levels of knowledge of staff nurses regarding MRSA with their selected demographic variables.

N=40

Sl no	Demographic variables	Characteristics	Knowledge level				Statistical value
			Adequate	Moderate	Inadequate	Poor	
1	Age	Below 25 year	0	2	1	0	$\chi^2 = 1.5908$ TV=3.84
		25-30 year	0	9	15	0	
		31-40year	0	5	3	0	
		>40 year	0	3	1	1	
2	Gender	Male	0	1	0	0	$\chi^2 = 1.128$ TV=3.84
		Female	0	18	20	1	
		Others	0	0	0	0	
3	Religion	Hindu	0	4	8	1	$\chi^2 = 2.159$ TV=3.84
		Christian	0	15	12	0	
		Muslim	0	0	0	0	
		Others	0	0	0	0	
4	Clinical experience	<1 year	0	2	2	0	$\chi^2 = 2.392$ TV=3.84
		1-5 year	0	7	12	1	
		5-10 year	0	5	3	0	
		>10 year	0	5	3	0	
5	Educational qualification	GNM	0	11	12	1	$\chi^2 = 0.0666$ TV=3.84
		BSc Nursing	0	7	7	0	
		Post BSc nursing	0	1	1	0	
		MSc nursing and above	0	0	0	0	
6	Area of working	General ward	0	3	4	0	$\chi^2 = 2.161$ TV=3.84
		Causality	0	1	4	0	
		ICU	0	15	11	1	
		Others	0	0	1	0	
7	Period of time working in ward/ICU/Causality	< 1 year	0	4	5	0	$\chi^2 = 0.14$ TV=3.84
		1-5 year	0	10	11	1	
		5-10 year	0	3	2	0	
		>10 year	0	2	2	0	
8	Previous information about MRSA	Yes	0	13	10	0	$\chi^2 = 1.722$ TV=3.84
		No	0	6	10	1	

IV. DISCUSSION

The Present study was aimed to assess the knowledge of staff nurses regarding methicillin resistant staphylococcus aureus in selected hospital with a view to develop an information booklet .The analysis of the study instituted that 47.5 %(19) of staff nurse have moderate level of knowledge 50 %(20) of them have inadequate knowledge 2.5%(1) have poor knowledge and none of them have adequate knowledge. The present study result is in tune with a research study published in Brazil (2008) to access the knowledge of MRSA among the nursing team, the knowledge and prevention of MRSA susceptibility was limited, which indicated the need for action to improve the understanding of preventive measures employed in the care delivered to patient colonised or infected by these microorganisms⁶.

This study also reveals that there is no significant association between knowledge regarding MRSA among staff nurses with, selected demographic variables.

The present study finding is in contradictory with a cross-sectional study conducted in Otono hospital, Ethiopia about the knowledge, attitude and practice of infection prevention among healthcare workers. Out of 271 samples 60.5% of healthcare worker had good attitude towards infection prevention and the study also reveals that there was significant statistical association in sex of health care workers, working in different unit or wards⁷.

V. CONCLUSION

MRSA bacterium causes infection in different parts of the body. It is tougher to treat because it's resistant to some commonly used antibiotics. Symptoms of MRSA depend on where you are infected. Most of MRSA infection are not serious, some can be life threatening. Many public health experts are alarmed by the spread of tough strains of MRSA.

These study findings alarms the need to improve the level of knowledge of staff nurses and continue the training for nurses about the preventive measures of MRSA such as hand washing techniques and donning of PPE.

Recommendations

- A similar study can be conducted on a large sample which may help to draw more definite conclusion and make generalisation.
- A study can be taken up by hospital infection control committee to assess the incidence of MRSA.
- A study can be conducted to assess the practices among staff nurse about preventive measures especially the protocols of doffing and donning.

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