

Self-instructional module on knowledge of staff nurses regarding systemic inflammatory response syndrome in pediatric surgery ward

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Received: May 30, 2019; Accepted: July 15, 2019

ABSTRACT

Background: When any microorganisms like virus, fungi, bacteria or parasite enter into human body that may cause infection. Sepsis is a life-threatening illness caused by the body overreacting to an infection. Any inflammation that affect the whole body due to any trauma, burns, pancreatitis, and infection that are called systemic inflammatory response syndrome (SIRS). Sepsis is restrained for SIRS when any infection is suspected or proven in human being. We can identify SIRS when patient body temperature is $>38^{\circ}\text{C}$ and heart rate >90 beats per minute and patient is suffering from tachypnea with >20 breaths per minute. **Objective:** The objective of this study was to find out the effectiveness of self-instructional module (SIM) regarding SIRS of staff nurses in pediatric surgery ward. **Materials and Methods:** In this study, researcher adopt quantitative research approach with one group pre-test and post-test research design was selected to assess the effectiveness of SIM regarding SIRS among staff nurses. Forty staff nurses were selected by non-probability convenience sampling technique. After pre-test, SIM was implemented among staff nurses and post-test of staff nurses was taken after 15 days of intervention. Ethical permission and written consent were taken from higher authority and staff nurses. **Results:** Before implementation of SIM, nurses had shown poor knowledge (10.6 ± 4.3) regarding SIRS, whereas after giving SIM, the knowledge had significantly improved with the difference of 17.8 ± 3.6 , indicating the effectiveness of SIM. **Conclusion:** Most of the staff nurses in pediatric surgery ward had poor knowledge regarding SIRS. SIM was highly effective to increase knowledge among staff nurses. Therefore, the knowledge of staff nurse can be future improve by providing ongoing teaching programs.

KEY WORDS: Systemic Inflammatory Response Syndrome; Knowledge; Self-instructional Module and Staff Nurses


INTRODUCTION

Health is a state of the organism when it functions optimally without evidence of disease or abnormality.^[1] An infection is a condition caused by microorganisms such as virus, fungi, bacteria, or parasite. Bacteria are the most common cause of hospital-acquired infection.^[2] When human body

reacts to any infection, then sepsis will develop that is a life-threatening illness due to that patients can suffer either blood poisoning or septicemia.^[3]

SIRS is a condition of inflammation in human body that will affect not only one organ but also it will affect different organs of human body; sometimes, it will be due to trauma, burns, pancreatitis, and infection. Sepsis is replaced for SIRS when infection is suspected or proved properly among patients in hospital.^[4]

Once sepsis occurs in patients and not treated properly, it can progress to septic shock and death among patients. Many research studies found that all of world patients who acquired sepsis out of them one-third patients were died and many of them survive are left with organ dysfunction or amputation.

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2019.0515916072019	

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It required early diagnosis and proper treatment of survival. Any infection after surgery may cause sepsis in patients.^[5]

In children, it is very difficult to early finding of sepsis, but sometimes, children may have signs and symptoms such as fever, change in heart rate or difficult breathing, and low platelet count.^[6] If we want to reduce incidence of sepsis among patients, then we need fast diagnosis and early treatment of patients that will help to reduce the mortality significantly and by it, we can reduce cost of treatment.^[7]

MATERIALS AND METHODS

A quantitative research, pre- and post-test design was carried out to check the effect of self-instructional module on nurses' knowledge of systemic inflammatory response syndrome (SIRS). Forty staff nurses were selected by non-probability convenience sampling technique. Validity and reliability of the tool was tested. Structured knowledge questionnaire was consisted which cover total content of self-instructional module. Ethical and administrative permission obtained from the Deputy Director of Health Services (nursing), Government of West Bengal and Principal and Nursing Superintendent Medical College and Hospital, IPGMR and S. S. K. M Hospital. Moreover, prior informed consent was taken from the study participants. After pre-test, self-instructional module (SIM) was implementing and post-test was done after the 8th day of the implement of SIM.

RESULTS

Table 1 illustrates that nearby half (45%) of staff nurses were in 20–29 years age group and maximum (75%) of staff nurse had General Nursing and Midwifery professional qualification. Mostly staff nurse (65%) had 1–2 years of experience in pediatric surgery wards. Maximum nurses (92.5%) not attend any in-service education on SIRS. Nearby half (42.5%) nurses had often caring children with SIRS in pediatric wards in hospital.

Table 2 shows that during pre-test, mostly 65% of nurse had poor knowledge score regarding SIRS and its management, but in post-test, nearby half (52.5%) nurses had good knowledge and 35% of nurses had excellent knowledge.

The mean post-test knowledge score was 17.8 ± 3.6 regarding SIRS of staff nurses importantly more than the mean pre-test knowledge score 10.6 ± 4.3 and at the level, $P \leq 0.05$ calculated that mean difference was 7.2 so that it was interpreted that implementation of self-instructional module will improve the knowledge of the staff nurses regarding SIRS and its management.

Figure 1 shows the mean percentage difference in pre- and post-test of six areas of SIRS and its management. In that,

Table 1: Sociodemographic characteristics of the staff nurses, $n=40$

Demographic variable	Frequency (%)
Age (in years)	
20–29	18 (45)
30–39	17 (42)
40–49	04 (10)
50–59	01 (2)
Professional qualification	
GNM	30 (75)
Basic B.Sc. (N)	04 (10)
Post basic B.Sc. (N)	03 (7.5)
M.Sc. Nursing	03 (7.5)
Experience in pediatric surgery wards (in years)	
1–2	26 (65)
>2	14 (35)
In-service education on SIRS	
Yes	03 (7.5)
No	37 (92.5)
Exposure in caring children with SIRS	
Daily	09 (22.5)
Often	17 (42.5)
Rarely	08 (20)
Not exposed	06 (15)

SIRS: Systemic inflammatory response syndrome, GNM: General Nursing and Midwifery

Table 2: Percentage distribution of the staff nurses according to their knowledge scores, $n=40$

Level of knowledge	Ranges of score	Pre-test (%)	Post-test (%)
Excellent	>19	00	35
Good	15–19	22.5	52.5
Average	12–14	12.5	2.5
Poor	<12	65	10

maximum modified knowledge area is diagnosed (70.1%) and the minimum modified of knowledge was in etiology and risk factors (45.7%).

In this research study, there was not found any statistically significant association between the pre-test knowledge scores of the staff nurses regarding SIRS and its management with demographic variable such as age, educational status, experience in nursing service, and pediatric surgery wards so that researcher interpreted that the knowledge score of staff nurses was not be changed by their demographic variables.

DISCUSSION

The result of this study shows that during pre-test, mostly 65% of nurse had poor knowledge score regarding SIRS

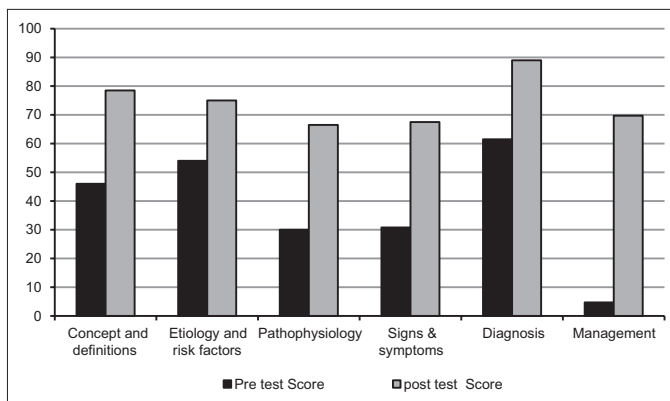


Figure 1: Comparison of presented mean knowledge score regarding systemic inflammatory response syndrome and management according to domain wise

and its management. This study was supported by Pavare, Grope, Gardovska, who had conduct study on the prevalence of SIRS in hospitalized children, in which they found that the children who was admitted in hospital they have high risk for developing sepsis with SIRS because there was lackness of early SIRS diagnosis and awareness among hospital staff that is risk factor for developing sepsis among children.

The results of this research study highlight that the SIM was very effective method for improving the current knowledge level of pediatric surgery wards staff nurses regarding SIRS and its management.

The results of this research study were supported by Hengel on knowledge of SIRS and sepsis among emergency nurses who are working in ICU Level 3 had exposure of sepsis patients and they had good management knowledge of sepsis. Researcher also found that good educational program about SIRS and sepsis can increase for less exposure of patient to septic.^[8]

This research study also supported by Jeffery, Mutsch, and Knapp who conduct research study on “Knowledge and recognition of SIRS and sepsis among pediatric nurses” in that study also researcher found that main knowledge deficit among pediatric nurses who are working in pediatric wards in different points of SIRS/sepsis recognition. They also five suggestion for an effective in-service educational program for pediatric nurses about acute and critical care and recognizing of sepsis in earlier stages.^[9]

This study finding also supports by a study published on November 2014, by Ganjoo and Ahmed on clinical and demographic profile of SIRS and sepsis in different hospitals of North India, in which they give importance of newly admitted children. In that, they found in the tertiary care hospital quota of sepsis is high for occurrence of SIRS among children who was admitted for long period. Therefore, it is necessary to provide current education regarding SIRS and sepsis and its management.^[10]

In this research study, researcher not finds any significant statistical association of knowledge of SIRS with selected demographic tools such as age and experience of nursing service in pediatric surgery wards.

Limitation

There are several limitations in the study which was accepted by researcher such as non-random selection of sample, very less number of participant in this study that can be influenced rationalization of findings, and absence of control group reduce the effectiveness of research study.

Strength of Study

In this study, researcher found that staff nurse had poor knowledge, but by self-instructional module is very effective to upgrade knowledge and management of all level pediatric staff nurse on SIRS. Selection of statistical test based on data collection and distribution.

CONCLUSION

The findings of research show that knowledge of SIRS and its management was inadequate of pediatric surgical ward nurses, but self-instruction module on SIRS was important for improvement knowledge of staff nurses to provide good quality nursing care in pediatric wards that play an important role in prevention infection and multiple organ dysfunction among children after surgery. It also provides good quality of life to children.

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How to cite this article: Karmakar P. Self-instructional module on knowledge of staff nurses regarding systemic inflammatory response syndrome in pediatric surgery ward. *Int J Med Sci Public Health* 2019;8(10):823-826.

Source of Support: Nil, **Conflict of Interest:** None declared.